

THE EDUCATION OF BACKWARD CHILDREN

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GEORGE G. HARRAP & CO. LTD.
LONDON TORONTO BOMBAY SYDNEY

First published 1939
by GEORGE G. HARRAP & CO. LTD
182 High Holborn, London, W.C.1

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PREFACE

THIS book has resulted from the desire to gather together the results of almost three years' experimentation in the organization of work in the Schools of the Southend-on-Sea Education Authority with dull and educationally retarded children. It is not intended to claim for this work that it introduces a new departure in educational method or even that the methods described are necessarily the best. It does attempt to suggest, however, a comprehensive scheme of progressive teaching-methods in Number and English suitable for this type of child. The sequence of individual schemes of work and of the materials suitable for each stage have required fine grading, and for this reason it has been necessary to prepare a comprehensive scheme capable of general application. Within this framework further experimentation in detail of method can proceed. The preparation of the scheme has been a collective effort on the part of all concerned, and each school has accepted these collective findings as the basis of work with its Special Classes. Thus each Special Class is at present working on the same English and Number scheme, but from this point individuality and variety in method can be introduced by individual schools.

A tribute must be paid to the skilful and enthusiastic co-operation of the teaching-staffs of the schools, who have given a considerable amount of time and energy in working for what they felt was to be a valuable contribution to teaching-method.

Mr H. Boyes Watson, the Chief Education Officer, has kept in close contact with the details of the experiment at all stages. His support, encouragement, and advice have been greatly appreciated and have ensured the smooth working of a large co-operative effort.

Thanks are due to the Education Committee for their confidence in those undertaking the work. Many members

have frequently visited classes and watched the progress of individual children, and the Committee as a whole has contributed much by its sympathetic and progressive attitude.

Owing to the ambiguity attaching to the word 'retardation,' it is necessary to state that whenever the words 'retarded,' 'retardation,' or 'backward' are used, they have reference to educational retardation when judged by the criterion of mental age. When it has been necessary to refer specifically to children who are unintelligent, the terms 'dull' or 'innately dull' have been used.

Acknowledgment must be made of the contributions of the following workers who have participated in the experiments described in the following pages: the members of the Southend Arithmetic Research Committees (*Senior Section*: The Misses Cheyney and Macintosh, Messrs Haxell and Morris; *Junior Section*: Miss Howe, Messrs Fortescue, Gibbs, and Pike; *Infants' Section*: The Misses Allard, Bill, Crane, Salmon, and Warman); Mr Holbrook and the staff of the Attendance Department for statistical assistance; Mr Blackwell for help in drafting the scholar's record-card and I.Q. chart; and the Misses Crane, Salmon, Young, and Macintosh, and Mr Denny and Mr Southgate for original contributions to method.

Thanks are also due to Messrs Evans Brothers, Ltd., for their kind permission for the reproduction of drawings from *Art and Craft Education*.

M. E. H.

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INTRODUCTION

ALTHOUGH the existence of the problems caused by educational retardation is well known in all areas where local authorities have reorganized their elementary schools, a restatement of the problem is necessary as a prelude to this account of an investigation into its nature and extent and of the subsequent steps which have been taken in attempting its solution.

The grouping of a much larger number of children within a restricted age-range, and the classification of children according to ability in each chronological year of their school life, threw into high relief the fact that each of these groups, although of the same chronological age, comprised children whose scholastic attainment extended over a range of as much as five or six years. This did not appear to constitute a serious problem in the 'A' and 'B' streams, but it soon became apparent that the children in the 'C' streams were not responding to the accepted methods of class teaching. Very little scholastic progress was being made by these children, and moreover there was evidence that the inability to achieve was causing a problem of wider significance. Children who could not obtain satisfaction through their school work were directing their energies into other channels. More than 50 per cent. of juvenile delinquents who came before the Juvenile Court were school misfits: inside the school there was a distaste among the teaching staff for work with 'C' stream classes. A grave responsibility therefore devolved upon the Education Authority to tackle a problem which was not only of a serious educational nature but one which had a much wider social significance.

In the early stages of reorganization an attempt was made to formulate methods for the children of lower ability, on the generally accepted lines of giving them a modified curriculum in certain subjects and introducing a greater

proportion of practical work. Within a short time it was realized that these were amateurish attempts to deal with a situation which required a professional diagnosis. Those who were responsible felt like craftsmen attempting to work in a medium whose composition they did not fully comprehend: they felt that a new technique had to be evolved if this medium was to be manipulated with success.

It was at this stage, in May, 1936, that the Authority called into consultation the persons who were making a professional study of the problem of retardation.

The Central Association for Mental Welfare were asked as professional consultants to diagnose the retardation in all the schools of the County Borough, to make a comprehensive survey of its nature and extent, and if possible to make suggestions for its treatment.

THE EDUCATIONAL SURVEY

Two Educational Psychologists spent three months in making a survey and at the end of that period submitted their report. For the purpose of this record it is only necessary to give some of the salient results and conclusions.

1. THE MEASURE OF RETARDATION

In order to obtain the necessary data the Heads of all types of schools co-operated in administering tests of scholastic attainment. In the Infants' Schools the scholastic measure was taken of 1083 children of 7+ years of age who were about to be promoted to the Junior Departments. Similarly 1456 Junior children of 11+ years of age who were about to be transferred to Senior Departments were tested, together with 360 Seniors who were 14 years of age and about to leave school.

All of these children were given Burt's Reading Accuracy Test (Graded Vocabulary). The results are given in the following table, which shows the number of children who were normal in attainment, the number who were retarded

or advanced, and the measure of retardation or advancement in scholastic years. It should be remembered that the three groups of children represent cross-sections of the school population and not its entirety.

RESULTS OF SCHOLASTIC TEST

READING ACCURACY

| Departments | Number of Children | | | | | | | | | | |
|--------------------------|--------------------|----|----|----|-----|---------------------------|----------------|-----|-----|----|----|
| | Years Retarded | | | | | Normal Attain- ment | Years Advanced | | | | |
| | 5 | 4 | 3 | 2 | 1 | | 1 | 2 | 3 | 4 | 5 |
| Infants— Aged 7 yrs. | | | | 35 | 123 | 365 | 250 | 157 | 87 | 41 | 25 |
| Juniors— Aged 11 yrs. | 4 | 12 | 28 | 50 | 98 | 502 | 320 | 274 | 168 | | |
| Seniors— Aged 14 yrs. | | 5 | 6 | 7 | 28 | 188 | 126 | | | | |

If the above numbers are expressed as percentages of the totals we find the following result:

READING ACCURACY

| | Retarded | Normal | Advanced |
|-------------|----------|--------|----------|
| Infants . . | 15 | 33 | 52 |
| Juniors . | 13 | 34 | 53 |
| Seniors . . | 13 | 87 | — |

These figures were taken as a rough indication of the numbers for which a revised class-organization would be necessary. It was estimated that 10 to 15 per cent. of the children in a reorganized school would be so retarded as to prevent them from benefiting appreciably when educated in a 'C' stream class.

2. THE CAUSES OF RETARDATION

(a) **Innate Dullness.** It was necessary to attempt to discover first the extent to which retardation was caused by innate dullness. The heads of schools were asked to submit particulars of the children in their departments whom they considered to be backward and/or difficult. Out of the 1278 children who were referred, a sample of 270 children with an age-range of 7 to 14 years was selected for individual examination and for a more intensive study. Each of these 270 children was given an individual intelligence test by the Psychologists, Burt's Revision of the Terman scale being used for the purpose. Their scholastic measure was based on Burt's Reading Accuracy Test. A comparison of the results obtained by these tests was made to determine how far the children's retardation was due to innate dullness.

The following table summarizes the results and shows the percentages of the retarded children falling in successive intelligence-groups. The figures in brackets show the average scholastic retardation in years of each of the groups, when measured from mental age.

| BORDER-LINE DEFECTIVE ← | | | | AVERAGE → | | SUPERIOR | |
|-------------------------|---------------|-------------|-------------|-------------|-------------|-------------|-----------------|
| Intelligence Quotients | | | | | | | |
| Departments | Below 70 + | 71-80 | 81-90 | 91-100 | 101-110 | 111-120 | Not Retarded |
| Infants (77 cases) | 4 | 6 | 20 (1.5) | 26 (1.5) | 16 (2.5) | 12 (2.5) | 16 |
| Juniors (126 cases) | 2 | 16 (2.5) | 20 (2.2) | 24 (2.5) | 18 (2.5) | — | 20 |
| Seniors (67 cases) | 15 (2.2) | 20 (2.9) | 27 (2.0) | 13 (2.6) | | | 25 |

It is interesting to note that quite a considerable percentage—as high as 25 per cent. in the case of the Seniors—were found, by this particular test, not to be retarded at all when due regard was paid to mental capacity. Most of these children had I.Q.'s below 90. The fact that they appeared on the list of problem children compiled by the teachers indicates that the teacher may have been unaware that they were working up to capacity. If the teacher has reassurance on good authority that such a child's attainment, even if poor, is *adequate*, a vitally important step has been taken psychologically in treating the difficulty. A very important part of a psychologist's service to 'backward' children is to diagnose in such a way as to make this evident.

The table is outlined in black to show the two regions of retardation in this sample of children:

(i) *The right-hand section*, where the children are of average or superior intelligence. This includes 39 per cent. of the total and is comprised, mainly, of Infant and Junior children.

To summarize, 54 per cent. of the Infants,
42 per cent. of the Juniors, and
13 per cent. of the Seniors,

who were individually examined are of average or superior intelligence, but their scholastic attainment is more than two years behind their mental capacity. This very clearly suggests that most of the more intelligent children tend to make up lost ground in the Junior department. Where such high percentages as 58 and 42 of the backward children fall into intelligence-groups above 90, there are extremely good prospects for remedial treatment. It would seem apparent, too, that the 13 per cent. of the Seniors, although only of average intelligence, should respond readily to treatment.

(ii) *The rectangle*, on the left, suggests where the main block of difficulty lies in the Senior School. Thirty-five per cent. of these, with average retardation 2·3 years below mental age, range from border-line defectives to those of dull intelligence. It will be remembered that a further 25 per cent. of the Seniors came within these intelligence-limits but were not retarded for their mental age.

The portion of the table above this rectangle shows the existence of the same problem and its extent in the Infant and Junior Schools, *i.e.*, 30 and 38 per cent. respectively of those individually examined.

- 1 (b) **Causes of Retardation Other than Innate Dullness.**

The causes other than innate dullness are usually complex. A scrutiny of a large number of cases indicated that the following were the circumstances which were most usually operating:

(i) *Change of School.* The migration of children is a special difficulty in Southend. In certain schools as many as 30 per cent. of the children change their school during the course of a year. Although school record-cards were in operation, it was apparent that a reliable measure of each child's attainment should be made available in order that there should be no loss of time in comprehending a particular child's needs.

(ii) *Transfer from one Department to Another.* This absence of a measure of attainment and ability is similarly a drawback when a child is promoted from an Infants' to a Junior and thence to a Senior Department. Without a reliable measure of what to expect from a child of a certain age, and of the child's actual attainment by comparison therewith, much valuable time may be lost in allocating children to their appropriate classes, since there may be as many as 150 admissions at the beginning of the school year.

It is the transfer from Infants' to Junior Departments where this is particularly important, for quite a large percentage of intelligent children experience periods of maladjustment and illness before the seventh year, which cause them to be marked down as of third-rate ability.

(iii) *Teaching Method.* The retarded child needs a special technique in order to elicit spontaneously from him the response of which he is capable.

(iv) *Differing Degrees of Retardation in One Age-group.* The range of retardation for all children of one age-group is at least one to four years. Thus the retarded children of the eleven-year Junior group may require to begin their period

• of recovery at any point from the work of the Infants' School upward.

3.* THE LINES UPON WHICH A SOLUTION OF THE PROBLEM MIGHT BE EFFECTED

The recommendations in the words of the Psychologists were as follows:

(i) That at least one teacher in each department selected for her suitability should work in co-operation with some recognized and qualified expert and if possible take some course of training in mental and scholastic diagnosis for the purpose of discovering, where necessary, the extent and causes of retardation.

(ii) That scholastic tests of the type used in making the educational survey be used as a means of objective assessment rather than the subjectively determined rating of a child as *A*, *B*, *C*, or *D*. These tests will place a child in his scholastic year level and thus indicate the work he needs.

(iii) That an effort be made to evolve a system of individual work which will range from the beginning of reading and number to the twelfth year of attainment, so that it will provide a progressive system of work for any child at any level of attainment. In the Junior School this will not only help the dull, backward child to catch up to the level of his innate ability but also allow of a more speedy recovery for the intelligent child who has become inadvertently retarded owing to the vagaries of health and adjustment in the infant years.

(iv) That the individual scheme in reading and number shall form the basis for the schemes of work for small tutorial classes accommodating no more than 30 children. The statistical findings would seem to point to the need for one such class per department. The remainder of the curriculum can centre round project work of a collective nature incorporating such geography, history, hygiene, etc., as will be useful in adult life rather than the kind of information which is of more strictly scientific interest. The more intelligent admissions to this class should be transferred back to the

normal streams as soon as they have caught up to the normal level for their mental age. There will be a small number who will be retained in this class because their extreme dullness unfits them for the ordinary class regime.

STEPS TOWARDS A SOLUTION

The report on the survey was most carefully considered by the Authority. It was recognized that the findings of the report were of profound significance and revealed the existence of a problem which could not be overlooked, and which would demand special efforts for its solution. Moreover, it was clear that the necessary steps towards a solution could not be taken except under the continued guidance of those who had made a study of educational psychology. Accordingly an Educational Psychologist was appointed to lead a co-operative effort to evolve new methods.

1. EXPERIMENTAL SPECIAL CLASSES

In the first few months experimental Special Classes were established in four schools and worked under the direct supervision of the Educational Psychologist. These Classes were in a Senior Girls', a Senior Boys', a Junior Mixed, and an Infants' Department, and in each of the Classes there were not more than 30 children on the roll. In the first instance attention was concentrated on drawing up a graded scheme of individual work in English to cover the scholastic age-range of the Class, so that each child could work at his own level and all could progress at their respective rates. In the first few months it was only possible to make a preliminary approach to the organized teaching of number, but the necessity for such a scheme and also the dimensions of the task were made clear.

After these experimental classes had been in operation for a period of about six months, the situation was reviewed in order that it might be explored how far and with what modifications the methods which were being formulated

could be extended and developed to cover the whole of the 10-15 per cent. of the school population for whom the ordinary class-room methods were considered to be inadequate.

2. THE TEACHING STAFF

One of the first points to be realized was the need for more instruction of the teachers both in the kind of methods suitable for backward children and also in the technique of mental testing. This aspect of the matter is one which should be the serious concern of the Training Colleges, although any considerable degree of understanding of the problems of retardation cannot be expected until a teacher has had a large measure of actual teaching-experience. For this reason we have found it inadvisable to put newly appointed teachers in charge of Special Classes. The number of teachers with adequate knowledge of mental testing and educational psychology was not sufficient to make possible immediately the establishment of a comprehensive system of Special Classes, which would have the necessary degree of continuity of method as children passed from one Department to another. To meet this need a series of general lectures was given by the Educational Psychologist, separate meetings being held for Senior, Junior, and Infants' teachers. These were followed by group-discussions. In addition, at least one assistant in each Department was encouraged to make a more detailed study of mental testing and the problems connected with retardation. Grants were given to enable these teachers to take the courses which are arranged by the Central Association for Mental Welfare, the Child Guidance Council, and the Board of Education.

When more Classes were established, the Psychologist spent a considerable time actually in the class-room working out with the teachers the syllabus and methods for particular classes. She also gave individual supervision and advice to teachers engaged on mental testing. As a consequence the teaching of retarded children is now regarded as being a specialist subject and receives due recognition from the

Authority. When a teacher is considered by the Psychologist to have reached a stage when he or she is regarded as competent to give individual intelligence tests and assess I.Q.'s by this means, a certificate of proficiency is granted.

3. EXTENSION OF THE SPECIAL CLASSES

It was next considered whether and in what manner the system of Special Classes could be extended to cover the whole of the Schools of the Borough. It was clear that in some Schools difficulties of accommodation and buildings would not permit an alteration of class-organization, but in so far as these circumstances permitted, it was decided to organize the work with retarded children in the respective types of schools on the following lines.

Infants' Schools. A specially 'selected' class was formed in each Department where accommodation permitted.

Junior Schools. The type of Special Class in the Junior Departments has varied in accordance with the size of the schools. When the school is large enough to permit of three-stream classification, it has been found advisable to deal with retarded children in the smaller 'C' streams: the number on roll in these classes was limited to 30-35. If the Department was only large enough for two-stream classification, one special 'selected' class (or two in certain cases) was allowed. Our experience so far has indicated that by this means during the transitional stage of the Junior School, the children of better intelligence will catch up to their normal standard of scholastic achievement.

Senior Schools. At the end of the Junior-school course there appeared to be left a residue of children who were unable to take their place in the normal Senior-school streams. Accordingly, one special selective class was formed in each Senior Department.

4. UNIFORMITY OF DIAGNOSIS AND KEEPING OF RECORDS

In order to minimize the loss of progress when children pass to new teachers it was decided to keep all scholastic records in terms of standardized measures which could be

understood more accurately and quickly than subjectively determined ratings such as *A*, *B*, *C*, or Good, Poor, etc. This organization and the type of record is described later.

5. TEACHING METHODS

It may appear to be an unnecessarily obvious statement to say that diagnosis is of little avail without treatment, but the realization of the significance of it is fundamental in dealing with retarded children. Scholastic testing is being increasingly adopted by education authorities in various connexions, but the full value of the results of the tests can only be obtained by the ascertainment of the correct form of treatment which will meet the type of case revealed by the diagnosis.

In this introductory chapter I have attempted to indicate the framework within which the formulation of improved methods has proceeded. In the chapters which follow the Educational Psychologist will describe details of organization and method which have been evolved during the three years' experimentation.

H. B. W.

CHAPTER I

A PSYCHOLOGICAL BASIS FOR SPECIAL-CLASS WORK

It would seem true to say that the majority of Special-class children need the provision which is made normally for children two or even three years younger than their chronological age. The retarded children in the Infants' Department are in need of a Nursery-school environment, those in the Junior School are for the most part in need of the kind of education afforded in Infants' Departments, while those in the Senior School need two to four years of the Junior-school course. These are the facts which determine primarily modifications in the curriculum for these children.

It has been said, "These children need work which is practical." The use of the term 'practical' is unfortunate, for it has been interpreted as meaning sensori-motor training in acquiring practical skills. Perhaps a better term would be 'concrete.' Material for these children must be presented in concrete form because their verbal ability is below the normal standard. This does not mean that the mental processes exercised will be fundamentally different from those of verbally minded children. In the Infants' Department the material of instruction is normally more concrete than in the Junior School. It is the verbal capacity of the individual or his facility in forming and comprehending verbally expressed statements which determines the need for concrete presentation of the material of learning. Symbols such as words and numbers are mostly indications of objects in the real world, and until a child can think fluently by the aid of symbols he must think by the aid of his senses. Instead of reading a problem in arithmetic he must see the articles which the words would represent. Although counters are presented to him he must still think in order to arrange them

in a sequence or to realize that two groups put together make a larger group which has a different symbol designating it. He will be thinking about sensorily disclosed objects instead of about objects which are called to his mind by a word. The formulation of propositions in words which a child of normal attainment acquires to a high degree of fluency in the Junior School is an extremely hard-earned ability because, unlike number, it depends on a greater variety of symbols with finer shades of meaning. It is for this reason that the retarded child needs activities with concrete objects about which to formulate propositions. If his little men or animals are before him in plasticine he can see them in relation to one another, *i. e.*, he can think about them and the words will spring to his mind. If he draws his ideas, again they are concretely expressed and he can make up sentences about them. Later, when the number of verbal symbols at his disposal is greater, he will be able to use these as substitutes for the objects about which he wishes to make statements. The quickening point of verbal fluency seems to lie at the normal stage of development succeeding the age of eight years. Certainly, children who have acquired a reading-age of eight years are at a stage when quicker progress may be expected. Until this scholastic age has been reached every care should be taken to present the material which is to be thought about in a concrete manner. Usually this involves the child's practical ability, for he must *do* something in order to formulate his ideas concretely, but it is not the motor skill which is of prime importance but the concrete results of the activity as an adjunct to a deductive or inductive thought process.

It is necessary to understand this variable need for concrete presentation of learning-materials in order to understand the functions of the Special Classes at each level. It is the relation between thought and language which is of importance. Words are tools which the children learn to manipulate in order to present their inner subjective life to the society round them. It is only by doing this that they can mature normally.

The children who are selected for the Infants' Special Class have for the most part an inner mental life about which they are inarticulate, either because they are innately dull or because they are so afraid of their desires that they dare not express them except in some indirect form such as stealing or cruelty to weaker creatures. The function of the Infants' Special Class is to make these unexpressed impulses articulate in a socially acceptable way. The child is encouraged to express his fears and desires in symbolic form so that he can understand them more clearly himself and at the same time test them out on the society round him. He will not be able to speak about them because he does not know in what language to couch his statements. The symbolism natural to this stage of development is that involved in pretending that the child himself or the objects with which he is in relation are some one else. This is termed loosely 'play.' The undirected spontaneous play of small children is their first exercise in symbolic interpretation. If this stage of development is unsatisfactory the further stages of symbolic interpretation involved in number and reading cannot in their turn proceed satisfactorily. It is in order to ensure that this blocking shall not hamper the child any longer than is necessary that the activities of the Infants' Special Class have been conceived on the lines set out in Chapter III. Most normal children have passed successfully through the early play-stage by the age of 6 years, and between 6 and 7 years of age there is appreciable progress in the assimilation of conventional symbolism learned in reading- and number-lessons.

The Special-class child, however, is late in reaching this stage in formal training because of emotional or intellectual immaturity. It is therefore the function of the Junior Special Class to introduce him gradually to the use of formal language. If the period of adjustment in the Infants' Special Class has been successful, and in most cases this is so, he will be able to deduce clearly, but he will not have the verbal symbols at his disposal between which to make his deductions, and he will not have formed the habit of controlled self-expression

in verbal symbolism. In the Junior Special Class he will be helped in this respect by being encouraged to express his ideas concretely in some sensory medium before using verbal symbols to express them. This will be facilitated if, in the Infants' Department, he becomes fluent in phantasy-expression in play-activities. The greater part of the learning-period will be given over to thought clarification, the lesser part to appending a verbally symbolic representation. It is chiefly what the words stand for which is important in the learning-process, not the word-shapes in themselves.

Children in Senior Special Classes are much more fluent in spoken language than when they were at the Junior School stage. It is more possible, therefore, to rely on the range of spoken vocabulary when teaching a retarded reader. He is already used to expressing his ideas in words at the colloquial level, and this is sufficient background for teaching him to read with words contained in his working vocabulary.

The function of the Senior Special Class is to use the interests of Senior Boys or Girls as material for formal training. Many reading text-books are now available which supply this need, and it presents no serious problem except in material suited to the levels of reading-ability normal to the Infants' and Lower Junior Departments. It is about the wider world outside their daily environment that these children are inarticulate, because their reading-ability is insufficient for them to read for pleasure or information. The Senior School projects as described in Chapter V aim at broadening their background of information in a way which will compensate for their inability to read fluently and prepare them with a vocabulary which will help future reading-progress.

It is helpful to bear in mind that with all children the purpose of formal training is to render the child a more expressive person and to increase the power of comprehending the self-expression of those with whom he comes in contact. For this purpose the content of thought is more important than the symbols in which it is expressed, and this former aspect claims priority in good teaching-technique.

CHAPTER II

THE RELATION BETWEEN DIAGNOSIS AND METHOD

THE measurement of present attainment is of little value unless it points clearly to the next series of steps in instruction. Most examinations set by class teachers and heads of departments serve the purpose of an inquiry into the success with which past instruction has been carried on. The class lists which result may lead to one or two children being moved from the 'C' stream to the 'B' or *vice versa*, but how far is it considered worth while analysing the results to find out why John Dullard is at the bottom of the list or Abel Domore half-way? Of what use would it be if it were done? John cannot have more detailed attention than Abel—there are too many other things to attend to. It is known that Abel can do his work better than John. It is hoped that John will pick it up somehow. Certainly with thirty children or more in a class this attitude is almost a necessity. The syllabus is worked through at the rate of learning of the top two-thirds of the class. The fact that there are 'A,' 'B,' and 'C' streams does not obviate this. The range of attainment in a 'C' class is very wide, and the tail end may be so retarded in school attainment that any hope of their comprehending the teacher's instruction is without foundation. A child who lacks the satisfaction of achievement is of necessity bored. Apathy and stagnation of the mental processes set in. Yet no child, however unintelligent, need *look* dull. If he does, it is for one of two reasons—either he is ill physically or he is bored. The biggest compliment that can be paid to a teacher of less intelligent children is to say, "How responsive and alert your children are." Very unintelligent children are as capable of outgoing initiative as their more intelligent fellows. Their initiative will be expressed in a less complex manner, but it should be as eager.

* Unless it can be discovered speedily what each of the retarded children knows already and what stages of instruction this implies, it cannot be ensured that they will feel the satisfaction of achievement. To set too high a standard for them may result in a retreat into day-dreams or an openly rebellious attitude. It is small wonder that a 'C' class is often regarded professionally as a difficult, unwelcome inheritance.

The passing of the all-standard school has taken with it the knowledge which was more commonly found in one single teacher's equipment than nowadays—namely, the methods which are suitable for children from 7 to 14 years of age. Nowadays many teachers can deal adequately with the 10- to 14-year level or with the 7- to 11-year level, but comparatively few are familiar with the stages of instruction ranging between 7 and 14 years and still fewer with the 5- to 14-year range. Yet 13 per cent. of the Seniors and 15 per cent. of the Juniors are children who, at the time of promotion from Department to Department, are still needing the instruction more commonly afforded in the Department they are leaving. Previous to this experiment, at the time of promotion from Department to Department, it was customary to label the children 'A,' 'B,' and 'C,' regardless of the fact that these letters of the alphabet were without any very exact connotation. After a month or so of applying his own tests, the receiving head teacher was able to make a more adequate classification.

Thus reorganization would seem to render imperative the necessity for some standard measure of attainment which will have meaning for every member of the staff. This will make clear, with a good degree of accuracy, just where in his stages of learning a child has arrived, and it will enable him to be placed without hesitation where he will derive the greatest benefit.

It is obvious that a test which will indicate accurately what stage the child has reached will enable the formulation of a system of individual instruction and provide the material arranged in a sequence which has relevance to the test-grading.

PROGNOSIS

There is still one other obstacle to a clear understanding of what results may be expected from each child. In a 'C' class, not only is the range of educational attainment wide, but in addition there is a wide range in the children's capacity to assimilate knowledge and skills. In an Infants' Department, the range is invariably between the superior and mentally defective categories of intelligence. In a Junior Department the range is between the superior and borderline defectives. In the Senior Departments it is unusual to find a child of superior intelligence in the 'C' stream. However, even here there is a percentage of backward children of good average intelligence who are capable of a much better standard than they have hitherto attained.

Because of these facts it is helpful to ascertain what may be termed the ideal limit for each child, *i.e.*, to what standard would this child have attained if the circumstantial causes of retardation had not been operative. It is also advisable that an estimate of this ideal limit should be formed as early in a child's school career as is possible. *The measure for this estimate is the intelligence test.*

METHOD

The mental processes of children who are less intelligent than the average are not fundamentally different in nature from those of their more intelligent fellows. Supposing at one time two children in a Junior Special class have mental ages of 8 years, yet one is 11 years of age chronologically while the other is 7.5 years old. The younger of the two children is of good average intelligence, the older is a border-line defective, yet they both have the same mental capacity at the time of testing. The younger child will outstrip the older in mental growth, for by the time he is 11 years of age his mental age will have amounted to approximately 11.7 years. He will learn more quickly because of this. Yet if at this time both children have reading-ages of 6 years,

both will need the same kind of reading material and exercises. The main difference in their manner of learning will be seen in the quicker progress of the more intelligent child. To understand this fact is most important, because failure to do so has caused confused notions of the needs of retarded children to arise. The least intelligent children in the elementary schools (excluding defectives) reach a maximum mental age of about 10 years. Provided the child's education has been adequate he should approximate to the 10-year level in scholastic attainment when he leaves school at the age of 14. If he is achieving this when he leaves school one can feel satisfied that his attainment is the best of which he is capable.

In the absence of psychological training it is difficult to distinguish between the amount of acquired information at a child's disposal and his capacity to learn, which is his innate endowment and which is his possession whether he has acquired scholastic information or not.

All method should take these two factors into consideration. *A measure of the child's intelligence or innate capacity to learn should set the ideal standard of attainment for that child. A measure of the child's scholastic attainment should indicate where in any scheme of instruction the child can begin to progress.*

In formulating methods for retarded children it is not necessary to distinguish between methods suitable for the backward children who are unintelligent and those who are of normal or superior intelligence. It should be mentioned, however, that in the selection of text-books it is advisable to reject books which demand a degree of intelligence above the level of the formal attainment required. For instance, some arithmetic text-books, although exercising the 7-year level of mechanical arithmetic ability, demand a mental age of about 8 years for the solution of the problems. It is better to select text-books suitable for average children. The more intelligent children who are sufficiently retarded to be included in a special class will find sufficient intellectual stimulation in these, for they are almost invariably labouring

under some handicap which causes them to be less mentally robust. Thus, provided one does not try to drive a child beyond his ideal limit as measured by an intelligence test, it is possible to draw up a scheme of individual work which will cater alike for the dull backward child and the bright backward child, and they can be educated side by side in the same class-room.

It has been said that dull and average children who are scholastically retarded should not be educated in the same class-room because they learn in different ways. It has been found in Southend that this is not necessarily the case. A bright child who has failed to learn and is scholastically retarded must plod first over the groundwork in just the same way as the dull. If he does not he will remain scholastically retarded for much longer than he need, and perhaps will never acquire the scholastic facility of which he is capable. In one of the first experimental Senior classes mentioned in the Introductory chapter the most intelligent girl in the class was the most retarded scholastically. As soon as she was given reading-material at the 7-year level, which was her level of attainment, she progressed rapidly.

When originating a method of instruction one must bear in mind the factor of interested attention.

Drever has defined interest as "latent attention."¹ It is, therefore, necessary to discover what emotional trends there are with which to stir up the latent attention awaiting stimulus.

Some younger children, in Junior special classes particularly, seem quite unable to recall what has been taught them just a few seconds previously. They have never at any moment during the period of instruction given more than the appearance of attention. Their eyes look, their lips move, but their emotional interest is elsewhere, concerned probably with their scarcely realized day-dream phantasies. It is useless to compel attention if a child is habitually in this state. There is only one hope—and that is to get at his world of dreams—wake them into concrete ex-

¹ *Educational Psychology*.

pression and use them as the material of instruction. If this applies to the children who are retreating from an unpleasant world into one of their own creation it applies no less to all children. With the normal child, however, one may *present* phantasy to him, and in so far as it is similar to his own half-realized phantasies so he will respond with emotional interest. With the small child it may be Mother Goose; with the gangster of 9 to 11, it may be Cow-boys and Indians, aeroplanes or motor-cars; with the adolescent, treasure-hunts and adventure, the mechanism of bicycles and ships.

When in later chapters our actual methods are described it will be possible to define by exemplification how learning is very much facilitated by connecting it with the associations which spring spontaneously in the minds of the children. It is more efficient as a method of instruction than when the text-book with its fixed range of associations, often remote from the child's experience, is made the centre round which instruction revolves. The emotional content of the learning-process is more important than any other factor in so far as retention and recall are concerned. Feelings and emotions are prior to symbols in the progress of human experience.

The way in which an individual scheme of formal instruction proceeds from the simple to the complex determines the ease with which the teacher can put the method into practice. If the cards, books, and examples are graded finely so as to bring about a very gradual increase in complexity of reasoning or cognition the time spent in actual instruction is minimized and the child progresses with a feeling of reassurance. Uncertainty in the face of the unknown gives rise to anxiety, blocking, and inhibition of the learning-processes. In mild cases it will only be a temporary obstacle to progress—in extreme cases it will lead to truancy. How seldom it is realized that in nine cases out of ten children 'won't try' because they are afraid they will not succeed. It is possible to love success so much that rather than fail it is better not to try at all. The border-line defective is as capable of this retreat from effort as the person of exceptional

ability. It is difficult to detect diffidence through fear of failure, but in teaching it is always safe to assume in the first place that this is the cause of apathy. The teacher must convey to his pupils the subtle awareness that failure does not matter and that success will eventually come, if optimal results are to be obtained. A pessimistic and destructively critical attitude will undermine the children's self-confidence, and their rate of progress will slow down. In his organization of learning-material he will minimize the possibility of failure by the way he proceeds from step to step. Perhaps nowhere is this better exemplified than in the individual methods of Infants' Schools.

The whole system of diagnosis is designed to prevent a child from being asked to comprehend material which has no meaning for him. It is necessary to find his level of attainment and start him off in number and reading a little below this point. He begins with material which has meaning for him, and increase in assimilation is gradual and assured because it is being associated with what he already knows.

CHAPTER III

THE SYSTEM OF TESTING AND RECORDING

DIAGNOSIS and the keeping of records are reduced to what is considered the necessary minimum. Four tests are employed, two for the measurement of scholastic attainment and two for the measurement of intelligence.

THE TESTS OF SCHOLASTIC ATTAINMENT

(a) THE TEST IN ENGLISH

The test which has been selected as the measure of English ability is Burt's Reading Accuracy Test ¹ The vocabulary of the test is graded in difficulty, beginning with the two-letter words, mostly pronouns and prepositions which are most common, and going on to three-letter words of phonic significance, and thence to the more common look-and-say words and the more difficult phonic combinations.

This test is easy and quick to administer, and because it is graded in difficulty, it measures a stage of attainment which has diagnostic value. In addition, its graded difficulty makes possible the grading of reading-material in terms of the test, so that even teachers with very little experience of special-class work, when presented with a child's reading-age and the graded reading-material, can gauge where in the scheme the child should be started.

When the English Test is administered

All children in the Infants' Department who are ready to be promoted to the Junior Departments are given this test at the end of the summer term.

¹ *Handbook to Mental and Scholastic Tests* (University of London Press).

Similarly all children who are ready to be promoted to the Senior Schools are given the test in the Junior Schools.

In the Senior Schools the children who are 14+ are given the test at the end of their last term.

In addition, all 'C' and Special-class children and the less successful 'B' children are so tested once every year.

In the case of 'A' and successful 'B' children, the only times they need to receive such a test is when they will leave the staff by whom they are known and pass in large groups to new teachers.

(b) THE TEST OF ARITHMETIC

We needed a test of mechanical arithmetic which would diagnose a child's knowledge of the processes. It was necessary for the test to be graded in difficulty and for the result to be interpreted in terms of an Arithmetic Age. Three committees were elected by the Head Teachers' Association and these were responsible respectively for the Infants', Junior, and Senior sections. The Psychologist worked in co-operation with the committees and served as their connecting link. As a result a test was drawn up and tried out in the schools of the Research Committee members before standardization. In June, 1938, the test was administered to all children in the Borough and the results for every child were sent in to the Psychologist for the purpose of establishing norms for each age-month. The School Attendance Department undertook the huge task of marshalling the results, and each test item was eventually allocated to the age-month at which it was successfully accomplished by at least 50 per cent. of the children. The test is given on pp. 33-37.

SOUTHEND ATTAINMENT TEST IN
ARITHMETIC

SECTION I

Diagnostic test for children who fail to score on Section II. This first section is very rarely needed and is intended for the use of the class teacher in the case of children who cannot score in Section II. The performance in Section I does not contribute to the Arithmetic Age. The tests in this section are to be given individually.

TEST I

(a) Recognition of Number-pictures

Use 6 cards, each $3\frac{1}{2}$ in. wide, showing 1 to 6 dots respectively, arranged in definite patterns as commonly used in Infants' Departments. They vary in length, but each has a space of $2\frac{1}{4}$ in. below the dots. The dots are adhesive and $\frac{3}{8}$ in. in diameter. Buff background and dark blue spots are suggested. Expose the number cards 1-6 one at a time for no longer than 4 seconds each in this order.

1, 4, 2, 3, 6, 5.

Show '1' and say, "What number-picture is this?" If successful, repeat with:

4, 2, 3, 6, 5.

If unsuccessful, say, "It is picture 'one,' isn't it?" showing it again. Give no second trial after this.

The test is passed if all are given correctly after the first trial.

(b) Recognition of Figures 1-6

Each figure should practically fill a 2-in. square of card-board. The shape of figures is suggested as follows:

'3' is to have a straight top.

'4' is to be composed of 3 lines in horizontal and vertical directions.

'8' is joined at the top side, and the loop of

'9' is approximately half the length of the stem.

Repeat procedure as for number-picture recognition but showing figures and saying, "What figure is this?"

(c) Matching Figures to Pictures 1-6*Required:* Number-pictures 1-6.

Figure-cards 1-6.

Place all pictures on the table arranged thus:

| | | |
|---|---|---|
| 5 | 2 | 4 |
| 1 | 3 | 6 |

Give the 6 figure-cards to the child, but take back again Figure 1 and say, "See what I do. I am going to put Figure 1 on Picture 1."

Place it in the space at the bottom of the picture-card. "Now you put the little cards on the big ones where they belong." Encourage by saying, "Where does the next one go?"

SCORE: Satisfactory result if there is no error.

TEST II

Repeat Test I (a), (b), (c), with number-concepts 7-10.

SECTION II*The Normed Test***YEAR 6-7**

[Test-sheets for the children to work on are to be obtained from the publishers. These are supplied for the years 6-7, 7-8, 8-9, 9-10. Printed question-sheets for individual children to use can be obtained similarly for the years 10-11, 11-12, 12-13, 13-14.]

When class is ready say, "See how well you can put the answers in. Mind you look carefully. Begin now."

(1) Add up to 6

$2+1=$

$4+2=$

$3+2=$

$3+3=$

$1+3=$

$2+2=$

PASS: 4 correct

Add up to 10

$5+5=$

$3+4=$

$4+6=$

$6+2=$

$7+3=$

$4+5=$

PASS: 4 correct

TIME: 5 minutes

(2) Dictation of Numbers up to 20

The order for dictation is as follows:

16; 11; 15; 18; 20; 13; 17; 14; 12; 19.

These are to be written down one beneath the other on the children's papers.

PASS: all correct

(3) Subtraction of Numbers to 10

Directions as for Test (1)

$$6-2=$$

$$8-4=$$

$$5-4=$$

$$10-2=$$

$$4-1=$$

$$7-6=$$

$$3-3=$$

$$9-5=$$

$$6-3=$$

$$10-7=$$

$$5-3=$$

$$9-8=$$

PASS: 4 correct

PASS: 4 correct

TIME: 5 minutes

(4) Addition up to 20

Directions as for Test (1)

$$5+6=$$

$$8+4=$$

$$7+7=$$

$$9+8=$$

$$12+8=$$

$$11+5=$$

$$10+6=$$

$$7+3+4=$$

$$4+13=$$

$$9+11=$$

PASS: 8 correct

TIME: 5 minutes

| | | | | | |
|--------|--------|--------|--------|--------|---------|
| (5) 64 | (6) 37 | (7) 38 | (8) 28 | (9) 37 | (10) 82 |
| 17 | 45 | 16 | 27 | -23 | -30 |
| 89 | 3 | 47 | 35 | — | — |
| — | — | — | — | — | — |
| — | — | — | — | — | — |

YEAR 7-8

| | | | | | |
|--------|--------|--------|---------|---------|---------|
| (1) 45 | (2) 80 | (3) 73 | (4) 879 | (5) 657 | (6) 762 |
| -26 | -43 | -68 | -273 | -349 | -487 |
| <hr/> | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> |
| <hr/> | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> |

| | | | |
|---------|--------------------|--------------------|---------------------|
| (7) 543 | (8) 486×4 | (9) 468×5 | (10) 237×6 |
| -465 | 4 | 5 | 6 |
| <hr/> | <hr/> | <hr/> | <hr/> |
| <hr/> | <hr/> | <hr/> | <hr/> |

YEAR 8-9

| | | | | |
|---------|------------------|------------------|------------------|---------------------|
| (1) 991 | (2) $804 \div 4$ | (3) $768 \div 5$ | (4) $905 \div 6$ | (5) 596×11 |
| -198 | | | | 11 |
| <hr/> | | | | <hr/> |
| <hr/> | | | | <hr/> |

| | | | | |
|---------------------|--------------|--------------|--------------|--------------|
| | <i>s. d.</i> | <i>s. d.</i> | <i>s. d.</i> | <i>s. d.</i> |
| (6) 256×12 | (7) 2 7½ | (8) 1 4½ | (9) 4 3 | (10) 5 9 |
| 12 | 1 2 | 7½ | -1 8 | -2 4½ |
| <hr/> | 1 11½ | 4 5½ | <hr/> | <hr/> |
| <hr/> | <hr/> | <hr/> | <hr/> | <hr/> |

YEAR 9-10

| | | | |
|-------------------|----------------|----------------|-----------------|
| | <i>£ s. d.</i> | <i>£ s. d.</i> | <i>£ s. d.</i> |
| (1) $870 \div 11$ | (2) 6 6 8½ | (3) 38 12 0½ | (4) 62 16 6 ÷ 6 |
| | 3 13 5 | -29 17 4 | |
| | 8 15 6¾ | <hr/> | |
| | 4 3 4 | <hr/> | (5) 5 14 7½ × 4 |
| | <hr/> | <hr/> | |
| | <hr/> | | |

YEAR 10-11

| | | | |
|---------------------|--------------------|--------------------|--------------------|
| (1) 167×39 | (2) $9758 \div 41$ | (3) $9219 \div 23$ | (4) $8167 \div 39$ |
|---------------------|--------------------|--------------------|--------------------|

(5) yds ft in

5 2 4 4

(6) gals qts pts

7 3 1 $\times 9$

(7) yds ft in

5 1 10

3 2 4

6 0 5

1 1 7

(8) gals qts pts

1 3 1

10 2 0

6 1 1

(9) yds ft in

3 1 6

-1 2 10

(10) gals qts pts

6 2 0

-5 3 1

YEAR 11-12

- (1) $\cancel{\text{L}}3 \text{ } 12s. \text{ } 8\frac{1}{2}d. \times 23$ (2) $\cancel{\text{L}}188 \text{ } 17s. \text{ } 1\frac{1}{2}d. \div 41$
 (3) $4 \text{ yds } 2 \text{ ft } 8 \text{ in} \times 17$ (4) $17 \text{ gals } 3 \text{ qts } 1 \text{ pt} \div 13$
 (5) $1\frac{1}{2} - \frac{3}{4}$

YEAR 12-13

(1) $\frac{5}{8} \div \frac{3}{8} = \dots\dots = \dots\dots$ (2) How many $\frac{1}{4}$ -lb. packets of sugar can be made from 3 cwt. 2 qrs. 10 lbs.? (3) I leave home at 8.32 A.M. and arrive back at 11.15 A.M. How long was I away? (4) 1.678×2.8 . (5) $8.75 - .35$. (6) What is the area of a carpet 3 yds. 1 ft. by 4 yds. 2 ft.? (7) How many square inches in a box lid which is 4 ft. 8 in. long and 1 ft. 10 in. wide? (8) $3\frac{3}{4} + 2\frac{5}{8} + 1\frac{5}{12}$. (9) $3\frac{3}{8} \times 3\frac{3}{4} \div 3\frac{3}{8}$. (10) A man earns £40 in 12 weeks. How much does he earn in 7 weeks?

YEAR 13-14

- (1) There are 480 children on roll: 400 were present. What percentage of all the children were present?
- (2) What is the Simple Interest on £250 for three years at 4 per cent.?
- (3) $8\frac{1}{2} - 4\frac{1}{2} - \frac{3}{4}$

SCORING INSTRUCTIONS

The child's basic arithmetic age is determined by the first year-group in which he can pass every test-item; *e.g.*, if he can pass every item in the year 9-10 but fails one or more in year 10-11, then his basic arithmetic age is 10 years.

The remaining correct items are scored thus:

Where there are 10 items in one year, each correct sum adds 1/10th year to the basic arithmetic age.

Where there are 5 items in one year, each correct sum adds 2/10ths of a year to the basic arithmetic age.

Where there are 3 items in one year, each correct sum adds 1/3rd of a year to the basic arithmetic age.

Probable Basic Age-levels indicating the Commencing Test

Special Classes in Junior School to begin at year 6-7.

Special Classes in Senior School to begin at year 7-8.

'A' Classes to begin the test at the year previous to their chronological age-group.

'B' Classes to begin at the year which is two years behind their chronological age-group.

'C' Classes to begin at least four years behind their chronological age-group in the case of Seniors and at least three years behind in the case of Juniors.

NOTE ON THE TEST

It will be noticed that the arithmetic processes are repeated in several of the test items. This reiteration of the same kind of sum is purposive. For instance—there are six subtraction sums in the 7-8 year, but these, though appearing to test the same process, are graded in difficulty between 7 years 4 months and 8 years 1 month.

With the exception of the 11- and 12-times tables the multiplying and dividing is confined to the easier tables which have been established first. It seems desirable to eliminate as far as possible failure due to imperfect knowledge of tables. Nothing short of a test of tables would adequately

test a child's knowledge of these, and the purpose of the test is to ascertain the child's knowledge of processes.

It should be emphasized that the nature of the test is in no way suggestive of the method of instruction. The test is one of mechanical arithmetic and serves merely to indicate by means of an Arithmetic Age at what stage of agility with figures a child has arrived. His Arithmetic Age will determine what kind of number practice and experience he needs and where in the general scheme he should begin. For instance, a child with an Arithmetic Age of 6·4 years needs intensive practice with concrete material illustrating number concepts and number composition. On the other hand, if his Arithmetic Age is 8-9 years his number agility is more stable and the printed exercise is within his scope.

When the Arithmetic Test is administered

This test is given at the same times as the Reading-test, with the exception of the 7+ year-group in the Infants' Departments. These children receive no test in number until they have been in the Junior School at least one term. Since the classification of the Junior School is determined primarily on English ability, the fact that the children are promoted without an Arithmetic Age presents no drawback.

Scholastic Diagnosis is in simple terms which have relevance solely because method is correlated with them. The Scholastic test gives the cue, the prearranged individual method provides the solution to the problem of instruction.

PROGNOSIS

(a) **The Individual Intelligence Test**

Testing the intelligence of young children, or older children who are dull, must be carried out individually. Without close supervision these children are incapable of directing their energies in such a way that will cause them to achieve their best result in the solution of the test items. They

need throughout the test the stimulation of encouragement and reassurance and assistance in the maintenance of concentrated attention. A good emotional *rapport* between child and tester is necessary for this. Thus it is essential to use an individual test, because of the unreliability of the group test of intelligence for children before the mental age of about 10 years.

In addition the test should measure the quantitative as well as the qualitative aspects of the mental processes. It is possible for a child to have a subtle intelligence for his age (*i.e.*, to be able to distinguish similarities between dissimilar articles, or to place three words in one sentence, or to define in terms of class rather than description) yet be incapable of the normal span of attention or retention and recall. If an intelligent child is neurotically inclined, mental energy is drained off by the unconscious conflict, and insufficient is at his disposal at any one moment to ensure retention of material which requires a comprehensive span of attention. There will be goodness of intelligence but an inability to comprehend material of any complexity. Many young children are retarded because of this factor. It is important, therefore, to have a test which measures all aspects of the mental processes which are involved in learning.

The Terman-Merrill revision of the Stanford-Binet tests (Harrap) satisfies this requirement. This test can be administered in 15 to 30 minutes in the hands of practised testers—especially when the child is as young as 7 years of age.

Thus provision is made for an early diagnosis of innate capacity (intelligence) in the case of those retarded in scholastic attainment after two years in the Infants' Department. A similar provision is made for the Junior Schools who admit scholastically retarded children whose I.Q. is unknown.

Individual testing of this kind is a lengthy process when compared with the speedy group test, yet when one considers that an I.Q. reliably assessed will give a permanent measure of innate capacity in most cases, it is worth while

taking the necessary pains to assess carefully. If the I.Q. is assessed on a group test at the early age of 7 years it is probable that its degree of reliability in the case of the duller and maladjusted children is negligible and a re-test would be necessary later. Even where an individual test has been given the child's subsequent performance in the Junior Department may show that the intelligence assessment was too low. In these few cases a re-test should give a better result.

The individual intelligence test is selected because it is one of the most revised and widely normed tests available. Difficult cases where a re-test at a later date will be necessary are those where a basic mental age of 5 years cannot yet be ascertained. If the six tests in year 5 cannot be accomplished successfully it is of no value to proceed further until a later date—no less than 6 months. All score sheets should be retained and in these cases there will be no need to re-test the child on those tests already passed. The children who at the age of 7 years cannot pass all the tests of year 5 will be for the most part those with I.Q.'s below 75.

It will be necessary to spread the individual intelligence testing of the Infants' Department over the last 6 months of the school year, and care should be taken that the younger 'C' children are left till last so that each may be 7 years old or as near their seventh birthday as possible.

It is to be expected that 50 per cent. approximately of the 'C' children tested at the age of 7+ will fall within the category of low average to superior intelligence. The following classification will be of assistance:

| I.Q. | |
|------------|-----------------------------|
| Below 70 | A case for referral to M.O. |
| { 70-79. | Border-line Defectives. |
| { 80-89. | Dull. |
| { 90- 99. | Low average. |
| { 100-114. | Good average. |
| { 115-124. | Superior. |
| { 125+ | Very superior. |

Thus in the future all 'C' children will enter the Junior Department with a measure of innate ability, with the exception of two or three cases in every hundred who are not yet able to accomplish a basic mental age of 5 years. These may be neurotic or mental defectives or both and should be referred to the Psychologist or School Medical Officer for further examination.

It would seem sensible to make an early diagnosis of these children, for in the past it has been regarded as less pleasant (to be euphemistic) to teach 'C' classes than brighter children.

This can be attributed almost entirely to the fact that the innate limitation of these children was not realized and exasperation at their lack of response was inevitable. If one can say, for purposes of scholastic formal training, this child is 7 years old although he has lived 10 chronological years, it is possible to arouse spontaneous effort in him by educating him at that level and to cease to expect the impossible. On the other hand, among these will be the brighter children circumstantially retarded who will more speedily repay remedial treatment. These children, given opportunity, will catch up to the normal scholastic standard in the Junior School.

(b) Group Intelligence Test

A group intelligence test will be administered to all normal children with reading-ages of 9+ during their last term in the Junior School, if they have not been given an individual test of intelligence earlier. This enables a finer analysis for the Senior School classification in the various streams.

Note.—Care should be taken that the group test of intelligence chosen results in a distribution of I.Q.'s similar to those of the individual test used.

A critical attitude to the Intelligence Test is maintained. If it is found a few years later that the scholastic graphs are mounting above the I.Q. line a re-test is given. This is not a frequent occurrence but it is often the result when the child

has passed through a stage of temporary neurosis when younger.

THE ADMINISTRATION OF TESTS

THE INTELLIGENCE TEST

It is advisable that the head of each Infants' and Junior Department should become proficient in the administration of the individual test of intelligence. It is also recommended that facilities for training and practice should be given to one other assistant on the staff—if possible the teacher of the Special Class.

In Southend the Psychologist frequently tested in the schools, and the headmistress or headmaster was able to watch the procedure on those occasions. The test-materials containing full instructions for procedure and evaluation were distributed to the schools, and a period of considerable unsupervised practice ensued. At the end of this time the Psychologist announced that she was ready to give final help and advice on details of technique to all those who felt sufficiently proficient in handling children in the test-situation. If the candidate showed facility in passing from test to test, in evaluating results and in scoring, and showed sufficient skill in putting the child at its ease, that candidate was placed on the register of official testers for the Borough. It is most necessary that training for intelligence-testing should be adequately catered for. The teachers of special classes in Senior Schools in this Borough are recommended to attend the intensive course on Intelligence Testing given by the Central Association for Mental Welfare. The ultimate skill in testing intelligence resides in the capacity to observe the way the child marshals his thinking processes. In the case of children suffering from abnormal personality development there are certain peculiarities of a subtle nature which can only be detected significantly by the clinically trained psychologist.

But in the majority of cases the intelligence test will give an adequate measure prognosing the ideal limit of attain-

ment for each child tested. For example, if an Intelligence Quotient of 80 is arrived at by means of the test, then the ideal educational limit for that child will be 80 per cent. of 14 years, which is about 11 years. If this child leaves school with a scholastic level of 10+ years, one can feel he has reached his ideal limit in so far as the formal aspect of education is concerned. However, supposing a neurotic child is tested and the resulting I.Q. underrates the child's intelligence? It would seem that this measure is invalid and misleading to the teacher. Yet it is true to say that it is an indication of the child's present capacity to learn, although it is not a valid measure of the child's capacity in the event of successful adjustment of personality.

THE SCHOLASTIC TESTS

It should be remembered that only 50 per cent. of the school-population is able to accomplish a standard set by the scholastic tests which is normal to their chronological age. The remaining 50 per cent. will have scholastic ages lower than their chronological age in varying degrees.

It would be unfortunate if the use of standardized tests came to be regarded as a measure of 'results' of class-teaching. The results of the efforts of pupil and teacher will be seen in the rise in the scholastic graph—results in the case of each individual child can only be assessed fairly in this way.

To administer scholastic tests is a simple matter. The arithmetic test can be set as a class exercise, care being taken that fatigue and boredom do not result from giving too many sums at one sitting.

The reading-test should be administered individually and out of earshot of the rest of the class. The tester gives no hints enabling a phonic building up of the word. The child should read the words in his own way, and his version must be evaluated as correct or incorrect.

SUMMARY OF TESTING

| Dept. | Name of Test | For which children intended | Time of Testing |
|---------|---|--|--------------------------------------|
| Infants | Burt Revision of Terman Scale | All 'C' children who are failing to make average progress | During last 6 months in department |
| | Burt's Reading Accuracy Test | To all children leaving department for the Junior School | During last few weeks of summer term |
| | Burt Revision of Terman Scale | To very retarded 'C' children with no I.Q. | Soon after admission |
| | Group Intelligence Test | To all children with Reading Ages of 9+ | During last term in the department |
| Junior | Southend Arithmetic Test Burt's Reading Accuracy Test } | (i) To all 'C' and special-class children | Annually |
| | | (ii) To all those leaving for the Senior School | In July |
| | Group Intelligence Test or Terman-Merrill Revision of Terman Scale (where trained tester available) | To children without an I.Q. if they are retarded educationally | On admission |
| | Southend Arithmetic Test Burt's Reading Accuracy Test } | To 'C' and special-class children | Annually |
| Senior | | To all leaving school | At the end of their last term |

THE SCHOLAR'S RECORD CARD

The same kind of record is kept for all children, whether they are normal or present a problem in any way. It is felt that elaborate and scientific recording of character-trends, temperament ratings, social attitudes, etc., is an impossibility at the present time. Very soon after the child's admission to her class, a teacher becomes acquainted with any idiosyncrasies of personality that there may be. It is something which he or she can only learn by personal contact with the child. An elaborate analysis of the child's character and personality which may be contributed by the child's previous school will provide little which is not learned in the first week. It would seem that any refinement in analysis of character and personality should be carried out by some one who has had training in theoretical psychology and who is prepared to make use of such a diagnosis in the treatment of any behaviour disorder.

The Scholar's Record Card here described was designed to record what was felt to be the necessary minimum of information for a child who was passing to another school. It shows at a glance what stage of attainment in English and Number the child has reached and how intelligent he is.

It also shows whether he is a problem child or normal, and in what kind of class he has been educated. The card is made in the form of a pocket, and loose reports from the School Medical Officer, the Psychologist, etc., are filed inside.

When a child changes school this Scholar's Record Card (procurable from Messrs E. J. Arnold, Leeds) should follow him as soon as possible if it is to serve a useful purpose.

The following samples of Scholar's Record Cards represent the type of recording for three kinds of children:

- A. The educationally retarded for reasons of innate dullness.
- B. The educationally retarded for reasons other than innate dullness, *e.g.*, emotional maladjustment.
- C. The child of normal attainment from point of view of mental age.

Sex Boy .. COUNTY BOROUGH OF SOUTHEAST-ON-SEA

EDUCATION COMMITTEE.

SCHOLAR'S RECORD CARD.

| | | | | | | | |
|-----------------|----------------|-------------------|-----------------|----------|-------------|---|----------------|
| Name of Scholar | Surname | Christian Name(s) | Scholar's T & Q | 75 81 | (i) (ii) | Date of Birth Christian and Birth Certificate or | 23.3.28 185 |
| | <u>Dillard</u> | <u>John</u> | | | | | |

| Review of Scholar's Attainment | | | Remarks |
|--------------------------------|-----------------------------|-----------------------------------|---|
| Schools and Dates | | Dates of Admission | |
| 1 | <u>Reverend St. Infants</u> | <u>10/10/35</u> to <u>11/1/35</u> | <u>Special class - dull + distractible</u> |
| 2 | " " <u>Junior</u> | <u>11/1/35</u> to <u>12/1/35</u> | <u>Referred S.M.O. See enclosed report.</u> |
| 3 | <u>Wilkins St. Junior</u> | <u>12/1/35</u> to <u>12/1/35</u> | <u>Special class - steady progress</u> |
| 4 | <u>Reverend St. Senior</u> | <u>12/1/35</u> to <u>12/1/35</u> | " " - <u>good progress</u> |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

| | |
|----------------|---|
| Scholar's Name | <u>John</u> |
| Address | <u>37, Wilkins St.</u> <u>W. North St.</u> |

SAMPLE A (front)

It is anticipated that 75 per cent. of the school population will be allocated variations on the card for the normal "Vera Bright." The remaining 25 per cent. will fall within one of the two categories described by samples (A) and (B), *i.e.*, the Dull and Neurotic. These comprise the problem section of the school population. It is therefore important to help these children as individuals and to keep clear records of the facts essential to an understanding of their difficulties.

Sample (A) (see pp. 47, 48)

John Dullard is here an ordinary immature dull child who will always need the curriculum of a Special Class.

He begins to learn at the end of his Infant School days, because it is then that he is approaching a mental age of 5 years. As a consequence the scholastic lines begin later, to indicate this retarded beginning. Most of these children enter the Junior School without a reading-age. In these cases the scholastic lines can begin from the seven-year chronological age-line.

He is tested at least once every year in arithmetic and reading. If there is reason to doubt the level of the Intelligence Quotient a second test should be given.

The scholastic levels shown in this sample would be highly satisfactory for such a child and would imply good personality adjustment and regular attendance.

Sample (B) (see pp. 51, 52)

Here Abel Domore is a child who has passed through a neurotic phase early in his school career. In the Infants' School he was incorrigibly naughty, and all the other things the Psychologist has said about him. His intelligence assessment is rendered lower than it should be by the factors of faulty attention and inhibition due to anxiety. A considerable degree of adjustment is brought about by Child Guid-

ance Treatment, but owing to this bad start and necessarily slow cure the child needs to remain in a Special Class until towards the end of his school career, when he is transferred to the 'C' stream. Had he been more intelligent or his neurosis less severe he might have caught up before the end of the Junior School period. Most boys with Intelligence Quotients of 100 or more who pass through a difficult early phase should catch up in time to enter the normal streams in the Senior School, or even later Junior School. This type of boy needs careful recording and observation.

Sample (C) (see pp. 53, 54)

Vera Bright is a normal girl here. She is of good average intelligence and has maintained her place securely in the 'A' stream except for a period in the Junior School when there was persistent trouble at home following the move to her new school. Her scholastic lines dip towards the 14-year level because the tests fail to record beyond this.

GENERAL CONSIDERATIONS

A. The same educational tests will be used throughout the Borough so that there will be no need to differentiate these in any way other than by means of the colours indicated on the cards. A pronounced dot can indicate the points of testing.

B. The Intelligence Quotient may be obtained from a variety of tests. So far we have used:

Southend Group Test of Intelligence.

Burt Revision of the Terman Scale.

Terman-Merrill Revision of the Binet Scale.

It is essential therefore to indicate on the card:

(i) The name of the test used when an Intelligence Quotient is allotted.

(ii) The date on which the test was given.

Abbreviations may be used provided it is clear which test is meant.

Sex Boy .. COUNTY BOROUGH OF SOUTHEAST-ON-SEA

EDUCATION COMMITTEE

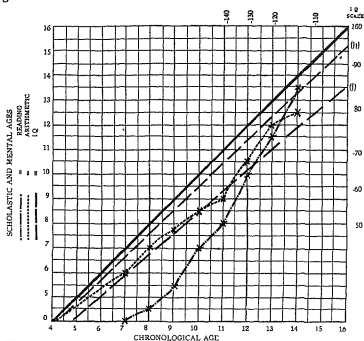
SCHOLAR'S RECORD CARD.

| NAME or Surname | Surname | Christian Name(s) | Scholar's | | Date of Birth (Question mark shows Guaranteed or) |
|-----------------------|---------|-------------------|-----------|-------------------------|---|
| | | | i. q | (i) 95 (ii) 95 | |
| | Domore | Abel | | | 23. 3. 38 18.5. |

| Records of Scholar Attended | | Dates of | | REMARKS |
|----------------------------------|--|-------------|-------------|--|
| School and Department | | Admission | Leaving | |
| 1. <u>Leamington St. Infants</u> | | <u>1933</u> | <u>1935</u> | <u>Special class Teacher Treatment, Exams. Psychological Examination</u> |
| 2. " <u>Junior</u> | | <u>1935</u> | <u>1936</u> | " " <u>more normal behaviour.</u> |
| 3. <u>Wilems St. Junior</u> | | <u>1936</u> | <u>1939</u> | " " <u>backward but making good progress</u> |
| 4. <u>Leamington St. S.B.</u> | | <u>1939</u> | <u>1940</u> | " " <u>4th year Transferred "C" stream.</u> |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |

| | | | |
|------------------|----------|---------|----------------|
| Parent's Name | T. Madam | Address | 37, Watkin St. |
| | | | 43, North St. |

SAMPLE B (front)



| REMARKS | INITIAL OF TESTER | SCHOOL |
|--|-------------------|--|
| Terman - April Scale. - C.A. 7.17 I.P. 8.5 M.A. 5.5 I.P. 8.5 Maurice child. Speech inhibited. Distastable. Unpleasantable. Formal training to be delayed. Child guidance treatment needed | MS | St. J. J. 6/15/32 |
| Terman - April scale. - C.A. 8.3 (retort) M.A. 7.10 I.P. 9.5 Much improved. Still afraid he will fail but praise and constructive criticism will help him over this stage | MS SD | Terman Pelt. 7/1/36 SD July '37 SD July '38 SD July '39 |
| Credible result | TS ES SD | TS July '40 ES July '41 SD Aug '42 |

Sex Girl

COUNTY BOROUGH OF SOUTHEND-ON-SEA

EDUCATION COMMITTEE

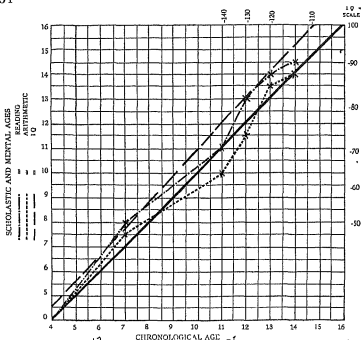
SCHOLAR'S RECORD CARD.

| | | | | |
|-----------------|-----------|-------------|--------------------|--|
| NAME OF SCHOLAR | RESIDENCE | CHURCH NAME | SCHOLAR'S L. Q. | DATE OF BIRTH CHURCH YEAR FROM CHURCH OF |
| Bright | | Vera Jean | 110 | 23.3.28 193. |

| S | Reason or Special Attention | Date of | | REMARKS |
|---|-----------------------------|-----------|---------|--|
| | | Admission | Leaving | |
| 1 | Penworth St. Infants | 1/6/35 | 10/1/35 | "A" stream Good Handwork |
| 2 | " " Juniors | 1/9/35 | 2/5/36 | " " " " |
| 3 | Wellens St. " | 14/3/36 | 24/1/36 | "B" " Difficulties at home See enclosed report |
| 4 | Penworth St. Senior Girls | 1/9/35 | 1/5/36 | A " - good average ability all round |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |

| | |
|---------------|--------------------------------|
| Parent's Name | Address |
| Eric | 21, Wellens St 42, North St |

SAMPLE C (front)



| SCHOOL | Beaver St Infants | July '35 | | | | Wrentham St S.G. July '39 | July '41 | July '42 | | |
|---------------------|---|----------|--|--|--|---------------------------|----------|----------|------|--|
| INITIALS OF TEACHER | | J.O. | | | | L.P. | J.B. | S.M. | O.P. | |
| REMARKS | <p>Wrote a little below "A" standard</p> <p>Sandwich Group Test of Intelligence</p> | | | | | | | | | |

'C. It will be remembered that the scholastic testing for 'C' and Special-class children takes place once a year at least. Children of normal attainment are only tested when they leave each of their three departments. (The latter is a minimum requirement.)

D. General remarks on the front of the card should be broad in outline, of the kind a Head Master or Mistress would value if he or she were required to allocate a child to a class without opportunity for preliminary examination.

E. Remarks on the back should refer to test-results. When a card is transferred to another department in mid-term a closure remark should be made by the head of the school the child has just left.

F. Score sheets, letters from School Medical Officer, reports from Psychologist, etc., should be filed inside the card. These cards will be of use probably after the boy has left school in connexion with the After Care Committee and the Junior Instruction Centre.

G. The following note on an easy method of plotting the I.Q. line will be helpful. When the I.Q. has been ascertained, place a dot along the edge of the graph at the appropriate place, *e.g.*, 82 would be a fifth of distance between 80 and 90. Then divide the I.Q. by 10. This would be 8.2 in our example. Then place a dot where the 8.2 mental age would cross the 10-year chronological-age line. Through these two dots draw the broken line, which will indicate the child's mental age at any time in his school career. This method depends on the fact that the $\frac{I.Q.}{10}$ divided by 10 will always give the mental age $\frac{I.Q.}{100}$ which the child would have at the chronological age of 10 years. $\frac{I.Q.}{100}$

CHAPTER IV

THE INFANT SCHOOL SPECIAL CLASS

WHEN the educational survey was made in 1936, it was found that no less than 22 per cent. of the children in the Infants' Departments were markedly retarded educationally.

It should be emphasized that, providing the Junior School has the organization which will provide these children with the groundwork they should receive in their first two years of schooling, this constitutes no problem of any dimension. It is possible for the child of good average intelligence to make up all the Infants' groundwork and pull up to average standard in his first year in the Junior School.

In order to know how to provide for children who lag behind markedly in the Infants' Departments it is necessary to inquire into the reasons for such a high percentage of retardation during these years. It was found that 50 per cent. of these retarded infants were of average to superior intelligence. The other 50 per cent. were dull.

It is clear why a dull child should be retarded—simply because his thought-processes are in too immature a stage of development to enable him to assimilate the material of formal training in number and reading. He has a weak span of attention, he is distractible and not ready emotionally to feel the joy of achievement in learning the written symbol. In extreme cases he may be a defective whose mental age when he enters the school at five years of age will be three years. No more can be expected of him than is demanded from a child in the younger section of a Nursery School. It is a waste of time and injurious to the child to attempt formal training in such cases. It would seem that routine formal training in number and reading should be delayed in the case of all children with Intelligence Quotients below 85. When one realizes that these children do not

attain a Mental Age of six until they leave the Infants' Department, or even after this, it would appear unwise to subject them to the normal requirements. They will cover the same ground in reading and number so much more quickly if they make the attempt when they are mentally more mature. They will do so with a sense of joy in achievement and their teacher without a sense of frustration. These remarks apply to only 50 per cent. of retarded infants. The intelligence of the other 50 per cent. should enable them to learn at the normal or more than the normal rate. These children have received an individual psychological examination and it was found that many of them were suffering from some form of personality disturbance. When a child is living in an environment which fails to give him reassurance and a feeling of security, a state of permanent anxiety is set up in his emotional life. This will cause him to turn away from any effort to deal with problems set by society. He may retreat into apathy and day-dreaming. He may set himself to be revenged and become an aggressive nuisance or a small pilferer. He may seek diversion in his avoidance of effort and incidentally gain attention by constantly interfering with something which should not be his concern in the class-room. The abnormal emotions of fear and anger will determine his personality trends; he will be unable to control the motor excitability which is normal in the restless activity of the child of Nursery School age. The factor of self-control is absent because that which is to be controlled—his fear and anger tendencies—is too strongly operative. It is possible he may display these symptoms and in addition be very dull. This child constitutes an even greater problem.

If the home life of these children is investigated, invariably one will find that the trouble has been caused by the parent-child relationship. Dr Susan Isaacs, in her book *The Nursery Years* (Routledge), has given such a successful account of the subtle effect the parent's attitude has on the child's personality in the pre-school years that to attempt it here would be superfluous.

Among the more intelligent children physical weakness

and absence from school does not seem to be a frequent cause of retardation in the Infants' School unless it is accompanied, as it often is, by personality-disturbance.

Thus the retardation in children of Infants' school age has two main causes—dullness and maladjusted personality.

In making provision for these children it would seem advisable to take the long view and not concentrate on the immediate solution of their scholastic difficulties. In order to do this the Infants' headmistress must be prepared to let them leave her Department if necessary knowing nothing of formal attainment, and the Junior School staff must be prepared to receive them in their complete ignorance of arithmetic and reading. It is not meant that they must of necessity know nothing at time of promotion, but it is advisable to be prepared for this.

The immediate aims of the Infants' Special Class should be:

- (i) To provide educative activities for the dull.
- (ii) To provide facilities for personality adjustment for those suffering from unbalanced emotions.

Any child who is capable of response to formal training should not be put in the Special Class whatever other problem he may present. If he steals or bullies, but is keeping a good position in his class, his personality-disturbance is of a very superficial nature and can be dealt with usually by means of co-operation with the home or by the direct influence of the teacher. Occasionally a child who is doing well in school work but who displays surface-symptoms of maladjustment such as restlessness, interference with other children, and pilfering has been sent for a certain period every day to the Special Class while his own class-mates have been engaged on painting, music, or games. Before making any decision about these children they are usually referred for psychological examination.

Only children who have failed markedly by the end of their first year to make any appreciable progress are admitted to the Special Class. The selection is made by the headmistress, but she usually discusses the children with the

Psychologist, and in cases which would seem to require intensive treatment a special diagnostic examination is made. In these cases the parent is interviewed by a trained Psychiatric Social Worker, while the Educational Psychologist interviews the child. In cases of extreme personality-disturbance the advice of a Psychiatrist, *i.e.*, a Medical Psychologist, is sought. If it is felt to be necessary, these children attend weekly with their parents, for play therapy and parental guidance.

The remainder of the children are helped over their difficulties by the organization of the Special Class.

CLASS ORGANIZATION

The maximum roll of these classes is twenty-five children. The kind of class organization described below is not possible with a larger number than this. A class of this size is sufficient usually to cater for a school of 300 or more because, as has been pointed out above, the children are selected at the end of their first school year. It accommodates those children who fail to respond even in a 'C' stream.

The main feature in its curriculum is the provision for play-activities which are known to have healing or therapeutic value. There is a low sink and tap in one corner of the room. There are small zinc baths and washing-boards, a clothes-line and pegs, dolls' clothes, bedding, and rubber dolls, bubble-pipes which blow four bubbles simultaneously, enamel mugs for baling water, a large sand-tray and boats, and tea-sets. These are arranged in the wet corner, near the sink, and all that side of the room is covered with linoleum, which dries more easily than soaked wooden blocks. The children have rubber aprons. Another corner is given over to housekeeping, where those wishing to be mother with the newly born rival can express their dual attitude of hate and love by alternate slapping and cuddling. The doll's pram is large enough to accommodate the children themselves, and socializing activity can often be seen when the neglected, unloved child climbs into the pram and is wheeled about by the child who emulates her mother's solicitude for her younger children. Building-blocks provide facilities for the

obsessionally aggressive. A favourite activity is to build a high tower with elaborate caution and then demolish it aggressively. A painting-board runs along one side of the room and painting-materials are available. The papers become covered with brush-strokes which do not appear to represent anything, but the child will confide to her teacher that it is a fire-engine inside a house, his mother holding out her arms for him, a motor-car crashing into a tree. A Psychologist can tell at once whether the Infant Special Class is performing its function adequately by the nature of the phantasy expression. The child passes from blankness in self-expression to the production of extravagant phantasies and thence to conventionally correct self-expression. At first there is an inability to express ideas or feelings in any connected or symbolic form. Then gradually one will notice the rubber baby is held under water and viciously drowned or shaken most brutally, that a child will bale water from the bath into the sink on and on with an absorbed expression on her face. This absorption in play is a necessity if it is to have therapeutic value. The sympathetic presence of the teacher is also necessary, for in order to benefit by the expression of aggressive phantasy a child must be made to feel that what he is doing is not frowned on by adults with whom he has an emotional relationship. It is a very difficult fact for a teacher who is not familiar with the New Psychology to understand that it is unconscious internalized fear which causes a child to be aggressive, and that what he is most afraid of is his own desire to inflict injury. If, however, he inflicts injury in his play and it is not frowned on by an adult he loves, then the internalized fear has been tried out in external expression and after each such expression of it he is reassured that it is not a fearsome activity which he must pursue in order to know the worst that can befall him subsequently. Gradually the restless urge to aggression dies away, and the child can pay attention to the queer marks and shapes which go with certain noises called numbers and words. A small child should never be punished for aggression, although he should be removed from the victim. The

most that should be suggested is a formal apology. This directs attention towards the sufferer and brings the sympathetic impulse rather than the fear-trends into prominence. Even if the child will not apologize, the influence of the suggestion will not be lost. It should be remembered that all these remarks concern the education of immature and maladjusted children and that the teacher is in an atmosphere where free play with the minimum of disciplinary interference is possible. At least half the school time is given over to free, undirected activity of this sort where the teacher co-operates and only interferes where disaster threatens. One-quarter of the day—preferably the last half of the morning—is devoted to quieter, more restrained activity, where the children sit at table, only moving to obtain some necessary piece of apparatus, to approach the teacher, or to converse with another child about his activity. Drawing-boards and chalks, plasticine, pencil and paper, jig-saw puzzles, scissors, and beads are suitable kinds of apparatus for this period, and it is during this hour that those children who wish to learn to read have their coaching from the teacher who sits at her table and waits for her clients. At the beginning of the year only two or three of the children may respond to her suggestion, but gradually all except the very dull or the very maladjusted will ask to begin. Even the latter usually make a fitful start with periods of lapse at frequent intervals. At the end of the year very few children will be able to score anything on the standard reading accuracy test, but they will have acquired a confident, positive attitude towards learning to read and have received valuable training in observing word-shapes. Their practice in number will have been largely incidental, and they will at the most be familiar with some number concepts. There is no striving after formal results, and the teacher must feel that the happiness of the children is the chief object of her organization. She will be able to introduce corporate activity more in her last term, preparing the children for the atmosphere of the Junior School. The value of this year's activities will be seen in the eager contented fashion the children settle

down in the Junior Special Class, where formal work becomes a disciplined reality.

In Southend we have been able to observe the effect of such a year on children who had older brothers and sisters in the Junior School. For instance, one family had a young representative in the Infants' Special Class and an older brother in the Junior School. The small boy was almost an exact replica of the older one—the same sullen resentment and evasiveness with occasional truancy and the same unresponsive attitude to class instruction. The older boy was several years retarded, the younger one after a year in school was making very little headway. By the end of the year in the Special Class, the smaller boy had lost the habit of scowling from under his eyebrows and grunting monosyllables in a sulky, monotonous growl. All that was left of it was an appearance of shyness that could be mistaken for modesty. He was outgoing and sociable and very skilled at handwork, particularly modelling. At the end of his first year in the Junior Department Special Class he was sufficiently advanced to take his place in the second-year 'B' stream. His work was very neat, and his drawing and handwork exceptionally competent. This boy was one of the more outstanding successes. He was of good average intelligence.

All the children, with two exceptions, benefited in a similar manner. These two were deeply neurotic children receiving special treatment. The border-line defectives, of course, will spend all their school days in a special class, but we shall be satisfied if they are outgoing and attaining satisfaction in the Junior School from their limited but lively achievements.

Perhaps the Infants' School provision for problem children is most important of all. Whatever influence is wrought before the age of 7 years may be of lasting value throughout the child's school-days, because these are the plastic years and experience during this time is less easily eradicated than that of subsequent years. After the seventh year a child's personality is much more set and it is more difficult to give him the deeper reassurance which it is the function of the Infants' Special Class to bring about.

CHAPTER V

THE JUNIOR SPECIAL CLASS

Most new admissions to the Junior Special Class will arrive at the age of 7+ years unable to qualify for a scholastic age on the standardized tests. The curriculum for these children will need to include the syllabus of the Infants' Department in so far as formal training is in question. In number it is a common error, for instance, to assume that these children are ready for a superficial course of addition up to 20 before passing on to addition in tens and units with carrying-figures. In reading there is often the necessity to habituate the child to the association between the printed symbol and the conceptual elements it symbolizes. The psychological adjustment of the child to formal training is a necessary prelude which is less obvious than the teaching of words and processes. There is always the danger that reading may become a visual-auditory-vocal reflex and number a counting-activity of a similar nature. This kind of training will give results on mechanical tests but will not educate the child in the true sense. *Printed words must stimulate ideas rather than sound patterns, and number must come to represent an idea of quantity rather than a digital sequence.* If sufficient care is given to the ideational content of symbols the formal results will benefit beyond measure. The start will be slow but the acceleration will be much more rapid eventually.

Years of experimentation have accustomed the Infants' Schools to this attitude of preparation, but Junior Schools commonly receive children at a stage when this is accomplished, and when the printed symbol is an accepted convention for most of the children. They can be given the most unlikely problems in arithmetic, quite divorced from their everyday experience, yet they will solve them without question by the help of the devices they have been taught. The

more immature child will still, however, be in the stage where symbol is not so readily related to experience, and it is the function of the teacher to bring the two into emotional relation either by presenting the symbol and then evoking the mental content to be associated with it or by evoking the ideational content and then appending the symbol. The latter process is the more fruitful and with some few children is the only way which succeeds at first. Skill in class-teaching depends on the ability of the teacher to do this. The method of presenting the symbol and then evoking the mental associations round it is more easily employed when a certain body of thought-symbol associations have been stabilized.

[The use of standardized mechanical tests may seem at first to be inconsistent with these assertions. These tests are intended to be a crude, rough-and-ready means of diagnosis which will point to a region of method which is prepared to meet the defects which the test results imply. No diagnosis, however refined, is of use unless a method of cure is ready. In scholastic matters it is the extremely rare child, such as those suffering from defects of a sensori-motor nature, who required refined diagnosis and special clinical methods of instruction.

It will be noticed that the reading-test begins from a basic age of four years. Reading is not taught nowadays before five years of age, and a Reading-age of 4+ must be taken for what it represents in actual fact, *i.e.*, an inability to recognize even the shortest and most common words. The fact that the test grading states four to five years is relatively unimportant.]

THE ORGANIZATION OF READING

The reading-ages of children in Junior School Classes range usually from 4 to 8+ years. It is possible to grade them and arrange them in groups according to their reading-ages as measured by Burt's Reading Accuracy Test. Children with reading-ages below 5 can be taught in one group,

those with reading-ages of 5 to 6 in another, and so on. For some lessons in the week the children who have reading-ages approaching the 8-year level can each take charge of about three children who are working at the 5- to 6-year level, while the teacher can occupy herself with those at the 6- to 7-year level. These children are at a stage where quicker progress is possible, and it is most economical to concentrate on these, for as soon as they approach the 8-year level they will begin to read for content by themselves and will be provided more easily with individual work. It would seem a mistake in a class of this kind to spread teaching-effort equally throughout the class. The teaching of reading is a very slow process, which quickens in rate of progress according to the child's range of reading-vocabulary. Even on theoretical grounds, therefore, it would seem feasible that the teacher should concentrate on those children who are approaching the 'quickenning-point,' which in terms of the reading-test would seem to be 7-8 years. The better children having been carried to this point, they can then be left for longer periods with individual work involving written efforts. They will have left the Primer stage behind and will have embarked on the silent reading of easy narrations.

The children who are more retarded than this—with reading-ages between 5 and 6 years—will still be in the mid-primer stage and will need some one continually at their elbow prompting as they go. For a child at this stage to derive benefit from a reading-lesson he should read aloud at least 5 or 6 times in half an hour before a prompting supervisor in addition to hearing others read. He should feel all the time that, "Soon it will be my turn, and I must be ready." If this is not possible, his attention will wander from the meaningless symbols, and he will either seek diversion round him or lapse into day-dreaming if the former alternative is not possible.

In order to allow of such frequent efforts the group in which he reads should be no larger than 4—three children in charge of one other. This seems the maximum size of the group if best results are to be achieved in this way. The

leader can ensure that every one of the three is 'keeping the place,' and the length of the waiting-period is minimized. The leader should be instructed concerning his technique, *i.e.*, "If a boy cannot read a word, tell him at once what it is so that there is no time lost. If you don't know yourself what the word is, come and ask me." These leaders can have a small note-book as insignia of office and can record their group and its progress in this. They will not fail to benefit themselves from such concentrated revision of easier reading-matter.

There are still the children with reading-ages below 5 years who have to be catered for during a lesson in which all the class are reading. It may seem paradoxical to say that those who are in the sorest straits are those which require help least. But in learning to read this is so. If such a child still has a reading-age of less than 5 after two or three years of schooling, there must be a good reason why this is so. Usually these children are extremely dull or emotionally disturbed to a pronounced degree—distractible and unable to attend, and consequently unable to recall. During a 30-minutes' reading-lesson it will only be necessary for them to give about 10 minutes to actual reading-matter. They are not ready for primer work. Most of the period can be used to draw and colour a picture of their own choice. Towards the end of the lesson the teacher can leave her promising 6-7 year reading-group with some mixed sentences to sort out while she asks the children one by one what they would like her to print under their picture. Just one sentence per lesson will suffice at this stage, and the simpler its construction the better. The teacher will print it underneath the picture (it will be as well to ensure space is left for it by getting the children to rule off a narrow space at the bottom of the drawing-paper before beginning their drawing). She will ask the child to read the sentence he himself has composed after she has printed it. Supposing the child suggested, "The man is digging in his garden," or, "It is me on the swings," the teacher—having printed the sentence and having heard the child read it once—will say, "Show me

'swings,' "Show me 'on,'" etc. Then the child can copy the sentence underneath the teacher's printing, thus stamping in the word-shapes to which he has just been introduced. This method of teaching reading has time and again succeeded where others have failed. It provides sufficient exercise to raise a child's reading-age to the 5-year level. It succeeds because it uses the stuff of the child's own spontaneous mental life upon which to tag the symbols of written language.



There is no reason why as many children as possible should not make their own reading-books in this way. It can provide the sole basis for written composition work for all children with reading-ages below 6 years.

It is impracticable as a regular activity with large numbers because of the time involved in passing from child to child, but in a 30-minutes' reading-lesson it is possible to attend in this way to a maximum of 6 children in the last 8 minutes

or so of the period. There are rarely more than 6 children with reading-age of below 5 in a Junior Special Class.

A set of reading-books for these classes is mentioned later. It would seem necessary to stress that an approach which is solely phonic is very wasteful with special-class children. Primers which begin with most of the words containing 'an' in their first page and 'ab' in their second, and so on, are more suitable as a later adjunct to a method which is based on the sentence unit. Phonic practice is introduced at a suitable level by the Beacon method, which is one of the most reliable for special classes. It would seem that phonic practice can take place as a class-activity in which all children can join. Teaching of phonics can be regarded as the drill which will one day aid the child's reading but not as a reading-lesson proper. It is hampering to the child's progress if, when reading aloud, he has to stop in the middle of a sentence to build up a word phonically. It is better that he should be prompted quickly, so that reading for content is facilitated. When he is more adept at phonic construction he can use this technique with effect.

Recognition of phonic units can take place in word-sorting games. A number of small cards with the word printed beneath a picture can be mixed together in an envelope. The words can be of two or three word-families of simple phonic combinations such as '-at,' '-ip,' and '-en.' These can be sorted by the pupils looking at the word forms and recognized by the aid of the correlated pictures.

The *Beacon Infant Readers* give word-families in phonic relation at the end of the book. Emotional significance can be given to these, and practice-effects enhanced by rhyming-games taken as a class exercise. In phonic practice the association of visual with auditory stimuli is necessary. The words must be spoken aloud and seen in relation to the other words which are similar to it. Supposing the lesson is on the sound 'ame.' The words 'came,' 'shame,' 'lame,' 'tame,' and 'game' are put on the board and sounded phonically—the initial sound first, then the final sound in one unit 'ame.' Thus each word will involve only the com-

bination of two sounds. Then the teacher can start a game of rhyming couplets, the children supplying the last word thus:

It is such a shame!
My poor little dog is ____ (lame).

At first all the children will not see what rhyme is intended, but they can learn from the older, more intelligent children. The couplet can then be turned about:

My poor little dog is lame.
It is such a ____ (shame).

This again can be turned about to give exercise in the first word.

Another example is:

When the toys came
We had a good ____ (game).

This exercise can be entirely oral with the exception of the words written on the board. There is no point in letting the children write these, for the material to be learned is of visual and vocal significance only. The rhyming couplets suggest a context for these.

All exercises round reading should involve the active contribution of the children rather than mechanical copying. The 'A.L.' Phonetic Reading Cards, by Dorothy Wray, provide additional incentive for individual practice.

The duller and younger children will not profit appreciably from exercises in phonic construction, but they will memorize the words by the look and say and sentence methods if the lesson is taken in this way.

A READING-SCHEME

In the reading-scheme described here the *Beacon Infant Readers* provide the major part of the reading-material. Other books are added at various stages to give less able

children an opportunity for additional practice in the vocabulary before advancing to the next step.

The following table of statistics reveals the necessity for such grading and will indicate the number of books required for each group:

READING-AGE GROUPS

200 Junior Special Class Children, Sept., 1938

| Reading-age in Years | 4+ | 5+ | 6+ | 7+ | 8+ | 9+ | 10+ |
|------------------------------------|----|----|----|----|----|----|-----|
| Approximate percentage of children | 20 | 14 | 27 | 23 | 9 | 5 | 2 |

RATE OF PROGRESS TO BE EXPECTED IN TERMS OF GRADED READING-MATERIAL

In one year the children with Intelligence Quotients below 85 will have made good progress if they have mastered *The Introductory Book*, *My First Reading Book*, *Picture and Talk*, and part of *Beacon* (I). More intelligent children will have progressed more quickly.

The approximate reading-ages which will result from mastering the content of the various groups of books are here indicated.

Reading-age 4-5 years

Beacon Infant Readers, Introductory Book } Ginn.
Book I }

Seander Series, My First Reading Book } Arnold.
My Second Reading Book }

Beacon Infant Readers,
(Supplementary to Book I) { Old Friends } Ginn.
Toys at Play }
Picture Talk }

Field Reader (Book I). Ginn.

Reading-age 5-6 years

Beacon Infant Readers (Book II) }
Clever Folk (Supplementary to) Ginn.
Folk Tales Book II }
Seander Series, My Third Reading Book. Arnold.
Field Reader (Book II). Ginn.

Reading-age 6-7 years

Beacon Infant Reader (Book III) }
Wise Little Goat (Supplementary to Book III) } Ginn.
A First Book of Verse }
Field Reader (Book III) }
London Dramatic Books, First Series, Book I. U.L.P.

Reading-age 7-8 years

Beacon Infant Reader (Book IV) }
Annancy Stories (Supplementary to Book IV) } Ginn.
Faithful Beasts }
Field Reader (Book IV) }
A Second Book of Verse }
London Dramatic Books, First Series (Book II). U.L.P.

Reading-age 8-9 years

Beacon Infant Reader (Book V). Ginn.
London Dramatic Books, First Series (Book III). U.L.P.
Little Black Sambo }
Little Black Quabba } Helen Bannerman. Nisbet.
Little Black Quasha }
 etc.
Story Pageant Series, by C. M. Martin. Cassell.

Reading-age 9+ years

Beacon Infant Reader (Book VI). Ginn.
Macmillan's Coloured Story Books (Nos. 8B, 10B, 3A, 4A), by Kate Lay.

By the time a child has reached a reading-age of 8+ the time for reading silently has come, provided there is available an abundance of easy reading-matter carefully graded.

Backward children with I.Q. above 85 will do well if they leave the Junior School Special Class at the age of 11 with reading-ages of 8+ or 9+. The mental age of a child of 11 with an I.Q. of 85 is little more than 9 years. Children with I.Q.'s below this will approximate round the 7-year reading-level at time of promotion to the Senior School.

ACTIVITIES ROUND THE VOCABULARY OF THE READING-BOOKS

Any device which will quicken the children's emotional interest in the vocabulary of the reading-books is valuable as an adjunct to the reading-lesson. The more real Mother Goose is made to the children, the more readily will the visual symbols connected with her be learned. The following devices will help to bring about this effect.

(i) **Dramatization**

Before the children in each group begin a new book, it is read to the whole class. Then the story is acted in a simple fashion. Dramatic detail is suggested by the teacher in the early stages, when the narrative detail is limited by the range of vocabulary. Thus a series of plays will form the dramatic repertory of the class. There will be the story of Mother and Kitty and Baby and Rover, Mother Goose and her relations with Jack and Jill, The Three Wise Men of Gotham, etc. The vocabulary of the book, but not its sentence-construction, will be introduced into the speech of the playlets. An example of a playlet woven round the theme of *Field Reader* (I) is as follows:

SCENE: *Outside Mother Goose's House*

Enter JACK and JILL

JACK: I wonder who lives in this little house?

JILL: I can see a name over the door. Let us look.

JACK: Can you read it? I can't.

JILL: I think it says 'Mother Goose.'

JACK: Let us knock. Perhaps she will give us some water.

I am thirsty after running down the hill.

(JILL *knocks and calls*) Mother Goose! Mother Goose!

(MOTHER GOOSE *emerges*)

MOTHER GOOSE: Why—it is Jack and Jill.

JACK: Yes—how did you know?

MOTHER GOOSE: I know your cousins Ruth and Kitty and John.

JACK: Will you give me a drink of water, Mother Goose?

I have run all the way down the hill.

MOTHER GOOSE: I have used all my water. I can tell you where you can get some.

JILL: Where, Mother Goose?

MOTHER GOOSE: You must go up the hill to the well. Here is a pail.

(JACK *takes it*)

JACK: Come on, Jill, I will race you up the hill. (*They run off.*)

MOTHER GOOSE: Mind, children. You will fall.

(*A loud scream off stage*)

MOTHER GOOSE (*hobbling to look*): Where is Jack? Where is Jill?

Enter JILL (holding her knee): We fell down. Jack has cut his head.

Enter JACK (holding his head).

MOTHER GOOSE: Poor Jack! Poor Jill! Come in! Come in! Let me see to it. Jack has broken his crown.

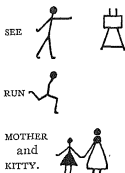
(ii) Drawing

Scenes suggested by the plays and reading-books can be drawn unaided by the children. They can label these with words from the books. This device can be used to occupy the children when boredom sets in towards the end of the reading-lesson.

It is analogous to the idea of the 'work-books' which are now being published for Infants' Schools. Older children can make their own work-books instead of relying on published drawings.

Similarly, pictorial dictionaries of the vocabulary of the

book can be composed. The verbs can be exemplified by drawing match-stick men in action thus:



The children soon get used to drawing pin-men, and these books are valuable for vocabulary revision.

SPEECH TRAINING IN JUNIOR SPECIAL CLASSES

AN IDEA FOR ORAL COMPOSITION

If the children in Junior Special Classes can be trained to express themselves in coherent sentences, the work with reading and written English is helped forward. Mention was made, at the beginning of the chapter, of the need to set free the verbal expression of ideas, to enable the children to become spontaneously articulate.

The main purpose of oral composition is to encourage spontaneity of sentence-formation. In order to elicit this, the children's interest must be alive and their imaginations stirred. Reference has been made in Chapter I to the invaluable material for instruction which lies dormant and scarcely realized within the child's own phantasies.

In the case of special-class children where verbal capacity is limited, discussion round a topic between teacher and children is less productive than with children whose progress has been normal.

It is necessary to conjure into concrete symbolism the

phantasies of which the child is emotionally capable. This can be done in a most exciting way through the medium of plasticine and drawing. At first the teacher can demonstrate rapidly by way of introducing the lesson. While the class is watching, she can say, "Watch—I am going to make a dog. There he is. Here is his collar and chain. He is fastened up in the garden. A cat comes by—here is the cat. The dog wants to chase the cat. Look at him jumping about on his chain. Puss thinks she is quite safe. The dog barks and jumps and pulls. Look, the chain is breaking! Off he goes. Grrrr! He has bitten the fur on the cat's tail. Poor puss. What a narrow escape!" The appropriate actions for the animals are made while the description proceeds. Needless to say, no great skill in modelling is necessary during the demonstration. The children are then asked to make up a little story like that. At first they may need the stimulation of a suggested theme such as, "Make up a little story about a naughty baby duck, or about a policeman, or about a house on fire, or a motor-car."

After a few lessons the children will spontaneously evolve their own stories. A further elaboration is to distribute papers and crayons so that a background can be drawn to the tiny drama. The latter part of the lesson is occupied in the oral demonstration of their stories by the children. The themes chosen will depend on the emotional maturity of the individual children. Children with reading-ages of 7 or more can choose one of their sentences to write down, the teacher writing on the board any words requested by the children.

This method is most successful with boys in Junior Special Classes. It would seem that boys on the whole are much more fond of plasticine modelling than girls.

PUPPETRY

The production of puppet plays carries the idea developed in the preceding section a stage further. It is a relatively complex activity involving self-discipline and co-operation with others. For this reason the stages leading up to the production of a play must be gradual, if the children are to

retain spontaneity in the activity. If the theme is too difficult or too unfamiliar the children will be inhibited and confused and will need prompting throughout, in which case the production will result in the learning of a set play provided by the teacher's suggestions.



PUPPETRY IN SCHOOL (I)

It has been found that the type of puppet most suitable for very retarded Juniors is that which is dangled from a string. As many as four or five children can participate in the production of one play with this type of puppetry. The children have merely to move their puppets on and off the stage and in relation to one another and can confine the major part of their mental energy to speaking the words.

The puppets can be made simply out of rolled strips of newspaper with pingpong-ball heads from which the suspending string emerges. Stuffed-rag heads are another possibility. When the puppets represent human beings, their clothing can consist of coloured paper or odd pieces of material. It is unnecessary to set too high a standard of finish in cos-

tume. Animals will be suspended from the two ends of the body with pipe cleaners passed through the trunk to form a tail, and support for the head. They can be painted an appropriate colour.

The children will make puppets at home and dress them too, once they have been taught this simple technique. The scenery for backgrounds and side wings can be prepared in art lessons—an interior with fireplace and pictures on the walls and an outdoor scene with trees and flowers can be kept as stock scenery.

There should be sufficient puppet theatres to accommodate the class of thirty in groups of four or five.

To begin with, familiar stories such as "Red Riding Hood," "Sleeping Beauty," "Cinderella," "Beauty and the Beast" will give wide scope for dramatic production. The children will soon grasp the idea of breaking up the story into scenes or acts.

Puppetry lessons in the Junior Special Classes need to be introduced with much suggestive detail. The purpose of this will be to present the theme as realistically as possible and clarify the development of the story in the minds of the children.

After the story has been told by the teacher, the working out of scenes can be done in plasticine modelling. If the story is "Red Riding Hood" the children can model the mother, Red Riding Hood, the wolf, the grandmother, and the woodcutter. If there is time, the grandmother's bed too can be made. In the next lesson the children can be encouraged to cause the mother to speak to Red Riding Hood, telling her to go to her grandmother's house. This can be practised first, the children volunteering to show how they would say it, the teacher suggesting and encouraging at each attempt. Then the meeting with the wolf can be developed, and so on until the entire story has been acted and spoken in a most elementary fashion by the modelled characters.

The second stage would be the demonstration in puppetry by the teacher of what has been enacted previously in plasticine. There need be no more than two characters on the

stage at once, so this can be done by one person. She will announce the play and scenes and cause the characters to speak their parts.

The third stage would be the group practice of the play, each group of four children having its own theatre and puppets. The teacher at this stage can walk round giving suggestive help to the weaker individuals.



PUPPETRY IN SCHOOL (II)

After a period of practice, groups can be encouraged to perform their play, entertaining the rest of the class. During these periods the teacher can sit with the audience, thereby enhancing the dignity of the spectators and leading the applause.

At the beginning of the show the leader of each group announces the name of the play, *e.g.*, "This is the story of Red Riding Hood." Then the grotesque characters are introduced one by one by those responsible for their movements. The child lowers the puppet before the front curtain and says, "I am Red Riding Hood," "I am Red Riding

Hood's mother," "I am the wolf," and so on till all the characters have been introduced.

Then the leader announces "Scene (I). In Red Riding Hood's home."

The curtains are drawn and the play begins.

MOTHER *enters*: Red Riding Hood, Red Riding Hood!
Where are you?

(*Enter RED RIDING HOOD*)

RED RIDING HOOD: Here I am, Mother!

MOTHER: I want you to take these things to Grandma. She is ill. There's some butter and eggs and bread for her.

RED RIDING HOOD: All right, Mother.

MOTHER: And mind you go straight there. No picking flowers in the wood. The wolf will get you if you do.

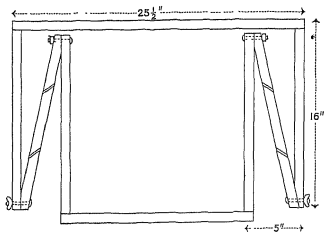
And so on.

In the second scene Red Riding Hood meets the wolf, in the third the wolf eats the grandmother, in the fourth he interviews Red Riding Hood in bed and is killed by the woodcutter, who runs in when he hears Red Riding Hood's screams.

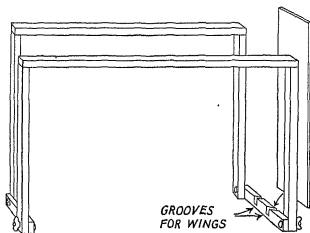
The words are simple and straightforward and for the most part originated by the children. The children sometimes elaborate and improvise as they go along. There is no strict learning of parts, but there is preliminary practice of the order of the speeches and the entrance and exits of characters. The children memorize the purport of the speech rather than the exact words.

The storage of eight puppet theatres is rendered less difficult if a folding type is used. The kind used in Southend were made at a cost of two shillings each by the school's building and repairs service. These consist of a frame which folds flat, and four side wings fitted into slots. The back scenery paper or cardboard pins on to the back frame. The puppets enter through the wings. The general appearance of the theatre is shown in the photograph on p. 78, but its construction is shown on p. 80.

No better device than this has been found to elicit spontaneity of speech. The teacher must be prepared for noise



Folded for Storage



Erected for Use

DESIGN OF THEATRE

and movement of an informal kind while the general group rehearsals are taking place. She can walk round encouraging and helping children who are less fluent.

Each little troupe can keep their properties and puppets in a large boot-box.

Thus storage-room will be needed for 7 theatres and 7 boot-boxes. The entire outfit would take up the space of one corner to the extent of 2 cubic feet at the most.

It has been found from experience that puppetry lessons should be grouped intensively over a period of the term and then, when boredom sets in, abandoned for a considerable period. One Junior Special Class arranges about 6 lessons in a fortnight in each spell, one at the beginning and one at the end of each term.

Glove-puppetry, although excellent for more mature and intelligent children, is rather hampering to the spontaneity of special-class children in Junior Schools. The hand has to be moved consciously at the same time as the speech is uttered, and this greatly adds to the complexity of the mental operations. In dangling puppetry the hand movements are simplified to movement in space without digital movement. Another factor is the limitation of co-operative effort in glove puppetry. It is difficult for more than two children to produce a play together because of space limitation caused by the need to insert the arm from behind the curtain.

WRITTEN EXERCISES

THE USE OF PICTURES (for reading-ages of 7+ years)

The cheap books which can be bought at multiple stores for a penny, twopence, or threepence provide many interesting gaily coloured pictures suitable for stimulating verbal expression. The illustrations cut out of one book can form a consecutive serial on such themes as "Holiday Fun" or "On the Farm" or "In the Train," while from others a story will be depicted such as scenes from the life of Dick Whittington. If the pictures are mounted on a larger piece of cardboard,

the vocabulary to be learned can be printed boldly round the edge—about five words to a picture. On the back of the card five simple sentences can be printed with the words which are printed on the front omitted. When the five words have been practised they can be inserted in the correct spaces in the sentences and written out as a piece of consecutive prose in the children's exercise books. It is essential that the words chosen should be key words in the emotional interest of the picture. For this reason it is best to choose first five simply worded sentences which describe adequately what is *happening* in the picture, and select the vocabulary to be learned from the sentences subsequently. Verbs and nouns are good key-words, while adjectives have less mnemonic value.

Several of these pictures could form preparation for a consecutive composition on the same theme, or in the case of illustrations of a story, the completed set will tell the whole story.

GUESSING-GAMES (Reading-age 7+)

Required. A number of small coloured pictures of a solitary article, animal, or person. Books of these can be obtained in multiple stores. On the back the name of the article is printed, such as 'pie' or 'bear' or 'postman.' On separate cards are printed the clues, such as:

"I am good to eat.
I am baked in the hot oven.
I am for dinner.
What am I?"

The child matches up the clue-cards with the answer-pictures and writes out the answer or even the whole riddle. As many as five clue-cards and five answer-pictures can be included in one envelope.

Other guessing-games similar to this can be bought from the publishers, Charles and Son.

The "Grosvenor" Picture Matching and Reading Cards (Set B) are suitable for children with a reading-age of 6.

The "Grosvenor" Intelligence Writing Cards (Sets I and II) are suited to reading-ages of 7 years and 8 years respectively. The Charlecote Reading Riddles (A-Z) can be accomplished by children with reading-ages from 7·5 years. A card-sorting game called "Which Month is it?" needs a reading-age of 8+ years, while the "Spelling for Fun" Cards need a reading-age of 9+ years.

These kinds of exercises give rise to boredom if they are used too frequently, and once a week is suggested. It will be an active lesson for the teacher, but the amount of help she will need to give to each individual is reduced by the clues already provided.

OTHER SUBJECTS

History, geography, and nature-study need not be regarded as separate subjects but rather as part of the English scheme. The teacher will tell the stories illustrating the facts, while the application of the lesson can be accomplished through one of the drawing, modelling, or dramatic activities which have been described.

These children are not too young to be introduced to world-location. A large blank map of the world can be pinned on the wall and some of the children's drawings pasted in the countries to which the incidents refer.

This type of child is surprisingly interested in learning the more common topographical terms, and modelling and drawing valleys, mountains, lakes, islands, rivers, and seas. Topography is closely associated with early phantasy life, and this lends emotional impetus to this kind of lesson. A lesson on the Mediterranean region can be based on the Greek story of the creation. The fight between the young and the old Gods and the endeavour to pile Ossa on Pelion will lend colour to a superficial study of the physical relief. The reference to earthquakes and burning mountains in this story is interesting. There is a book called *Myths of Hellas*, translated from the German by Younghusband (Longmans, Green and Co.), which is very helpful. The Butcher and Lang translation of the *Odyssey* provides an excellent phantasy

background for 'geography' lessons. The stories will need to be told in a simple manner, but the accounts of Odysseus wrestling with the forces of nature enlarge the children's grasp of the physical characteristics of the earth. For instance, the departure of Odysseus from Calypso's island, the winds and storms, his wreck on a rocky coast, his seeking sanctuary in a river mouth, form preparation for a study of ports and light-houses which may be made in the Senior School.

It is necessary to forget the academic custom of dividing the day into sections devoted to various subjects. It is more helpful to aim at enlarging the range of the child's interested attention to the world beyond his immediate confines by the use of words in a story setting.

CHAPTER VI

SENIOR SPECIAL CLASSES

THE segregation of retarded children in the Senior School raises a question of psychological importance which has been much debated in recent years. The adolescent is much more sensitive to social appraisal and disapproval than the child of junior-school age. If the label 'backward' or 'special' is continually brought to his notice he will feel inferior, resentful, and apathetic. The 'C' stream class is distinguished from the 'A' and 'B' stream classes by these emotional characteristics in addition to inferior scholastic status.

It is common knowledge that the scholastic age-range in a third-year Senior 'C' Class can be as much as from 7 years to 13 years. Both the relatively efficient and the relatively retarded are dissatisfied with a curriculum which must cater for the middle group of children. There is nothing more exasperating than being asked to do work which does not exercise the mental powers to their maximum, and no less annoying is it when there is little hope of success because the standard of work demanded is considerably above present ability.

The least able members of the class become hopeless and apathetic and accept their deficiency as a necessary part of themselves. If one of these children is asked, "Why can't you read?" the answer is often, "I don't know. I never could." It is interesting to recall the change which took place in a girl of 13 years. She was in one of the first experimental classes set up in the Borough, and at the beginning of a 6-months' period she had a reading-age of 7 years. She was provided with work suited to her reading-ability and towards the end of the experimental period she was asked quite casually how her reading was progressing. She replied, "Oh, I read a lot now. They call me 'Reading Annie' at home." From tacit acceptance of her inability to read she

had reached out towards the goal of success and was fast becoming a satisfactory reader. She was a rather dull girl with an I.Q. of 87, implying a mental age of about 11 years. Her reading had been 4 years retarded.

It would seem from this and many similar experiences that scholastically retarded children gain their sense of self-evaluation more from their own sense of achievement than from being labelled this or that. It is a question as to whether it is preferable to be a dunce in a 'C' class or a progressive member of a class designed to give special opportunity to those at a present disadvantage.

In one school an experiment was tried in which the retarded children were retained in the 'C' stream class appropriate to their chronological age. The classes were small, and the individual work of the Special Class was introduced. The three teachers concerned 'specialized' in certain subjects in each of the 'C' classes. The scheme was not a success. The boys who would normally have comprised the Special Class formed a very retarded minority in each class. Two-thirds of the class had mastered the elements in reading and number and were easier to teach in consequence. They produced more written work and claimed the teacher's attention to the detriment of the retarded boys. The remaining third of the class needed careful individual attention at a level of attainment with which the master was unfamiliar.

It is easier to organize instruction if seven boys are at the primer stage in a class of thirty than if there are only one or two boys as retarded as this. The selective Special Class allows for better grouping according to scholastic age. A child learns to evaluate himself from his own achievement as well as from the opinion of others. If he feels he is progressing and in doing so earns praise from his teacher, his period of 'segregation' in the Special Class is well worth while.

It would seem from experience that adolescent boys are more apt than girls to feel the isolation of the Special Class. This may be due to teaching-influence or to the greater susceptibility of the male sex to inferior status. Certainly

boys display much more intellectual snobbery than girls, and the fault may lie in the haughty attitude of the boys in 'A' classes to their less gifted fellows. Ultimately it is the attitude of the staff to the various categories of intellectual ability which sets the tone of the school. Teachers are intelligent people whose natural impulse is not to suffer fools gladly. Until members of the teaching profession have learned to accept emotionally the limitations of unintelligent children they cannot enjoy the task of teaching them. The success of teaching must not be measured by results, but by a measure of attainment in relation to capacity. The border-line defective who leaves school with a reading-age of 9+ years is worthy of praise, for he has used his one talent to great advantage.

It is possible for a border-line defective with an I.Q. of 75 to achieve a reading-accuracy age of 13-14 years before leaving school if his visual memory is exceptionally good. His reading-comprehension will approximate more to his mental age.

Another method which has been tried is that of allowing the Special Class to disperse at odd intervals—the third-year boys to join the third-year 'C' class for physical training and music when their lessons occur—the second-year boys doing the same. This leaves the teacher in charge of the Special Class with smaller numbers for certain intervals and enables more individual attention to be given to those remaining. Usually, in an organization of this kind the time which should be given to cultural activities suited to these children's requirements is broken up to such a degree as seriously to limit its possibilities. However, the boys do like joining the other classes where they can make contact with boys of their own age-group, in subjects where their inability to read and spell and do arithmetic will not be in evidence. The difficulty of partially breaking up the class at a time when corporate project activity would be taking place should be avoided. The individual work in English and arithmetic could take place at those times, an extra lesson being inserted each week to make up for the time spent out of the class-room.

CLASS RECORDS

It is possible to arouse much interest in self-achievement by plotting a class graph to show the reading- and arithmetic-ages of each individual. The children do not regard this form of class list as a comparative study—a ranking with some one at the top and some one at the bottom—but rather as a measure of their own individual achievement. When the new graph is added at the end of the year in a different colour they are interested to observe their own jump regardless of the comparative success or failure of others. They are also interested to see the climb their line has made on their own Scholar's Record Card after a year's work. Graphical representation of scholastic results for the children's inspection has roused far more interest than competitive class lists, which are only a source of joy to the few scholars near the top and a source of despondency and feeling of failure to those near the bottom.

The two class graphs, one for reading and one for arithmetic, are very useful for quick reference by the teacher, if they are pinned up in the class-room. The children's names and Intelligence Quotients can be inserted along the bottom and the scholastic ages along the left-hand side. The children show little curiosity concerning the number (I.Q.) beside their name and are quite incapable of understanding how a number could be a measure of how clever they are. If by any chance they should show curiosity they have merely to be told it is a number which teacher has given them in her book and now it is entered on the sheet. It is very useful to have quick access to a boy's scholastic age and I.Q. from hour to hour. In a very short time the teacher memorizes each child's I.Q. This is necessary if allowance is to be made for the children's innate limitation when assessing a rate of progress which can be expected within reason. In her instruction she will *give* the very dull the information, with the more intelligent she can leave them to find out, having provided the clues. She will rely more on the rote memory of the dull but employ the reasoning-powers of the relatively

more intelligent. For instance, the phonic building up of words with children of 70-85 I.Q. in the Junior Special Class yields little return, but by the time they reach Senior School age they are sufficiently mature intellectually to benefit by this approach.

It is advisable also to keep a record of the progress through the books in the order in which they are listed. The titles can be entered along the top of a sheet and the children's names down the left-hand margin. The date under the title and opposite the name will signify the satisfactory accomplishment of the book. A similar recording can be made for the arithmetic scheme.

TIME-TABLE

Children in Senior Special Classes usually spend a whole day each week at domestic science or manual work. It has been found necessary to devote most of each morning to English and arithmetic if the children are to benefit appreciably. It must be remembered that these classes are to provide an opportunity for the retarded children of normal intelligence as well as the dull. The more intelligent children can usually be transferred to the normal streams at the end of a year, provided their reading-age is not markedly lower than 8 years at the outset.

A minimum requirement for English is a lesson lasting one hour per day. When individual work in English is organized, a shorter period of time is inadequate. The children are working at their own rate and the same kind of fatigue as is experienced in class-teaching does not occur. During an hour the teacher can give attention to 15 to 20 children. This will be about the number of those who will apply to him for assistance and correction when a piece of work is completed. If this programme is consistently observed, the progress in English is very marked. The amount of written work is reduced to what is considered the necessary minimum, and marking of exercise books takes place in the class period.

The other half of the morning is usually occupied with arithmetic, scripture, and physical training. A 40-minutes' arithmetic lesson per day would seem to be adequate.

The afternoons will be devoted chiefly to project work after the manner set out in the section on Senior School Projects. It would seem a pity to divide the time between this or that subject in a rigid manner. It is preferable for the time to be planned at the beginning of the week according to the requirements of the project development.

The foregoing remarks assume that the class is in charge of one teacher. If this is not the case some modifications will be necessary. Sometimes the teacher in charge of the Special Class is also a specialist in another subject. In this case the children will be taught by other specialists. The comprehensive project as described subsequently will not be so easily arranged, but this is no great drawback if all members of the staff teaching the varying subjects co-operate. In actual practice this co-operation is seldom in evidence.

THE TEACHING OF ENGLISH

The reading-age range in a Senior School Special Class usually ranges from 4+ years to as much as 13 years. Most of the children are grouped at the 9-year level or below at the beginning of a new year.

READING ACCURACY AGE-GROUPS

218 Senior Special Class Children

| Reading-age in Years | 4+ | 5+ | 6+ | 7+ | 8+ | 9+ | 10+ | 11+ | 12+ |
|--|----|----|----|----|----|----|-----|-----|-----|
| Approximate percentage of children . . . | 1 | 5 | 7 | 12 | 20 | 19 | 17 | 12 | 7 |
| Possible numbers in class of 30 | ? | 1 | 2 | 4 | 6 | 6 | 5 | 4 | 2 |

Until a reading-age of 7 years has been reached, it is necessary for the teacher to give personal supervision at frequent intervals. After that time, if the books are finely graded and selected, this will not be so necessary.

In Senior Schools it is difficult to find easy reading-material which is suitable from the point of view of emotional interest. The children are usually somewhat immature in personality development and not so critical as more intelligent children, and so the problem is not so acute as it would seem at first.

The following reading-books classified in terms of scores in Burt's Reading Accuracy Test are requisitioned for use in the Southend Senior School Special Classes.

READING-AGES 7+ YEARS OR BELOW

STAGE I

The Speedwell Primer—Hume and Wheeler (Cassell).

STAGE II

¹ *Blackie's Large Type Supplementary Infant Readers*
(Junior, Intermediate, and Senior)

1. "Jack-a-Dandy"
2. "The Tale of Sly Tod"
3. "The Golden Cobbler"
4. "The Magic Duck"
5. "The Three Silver Pennies"
6. "Neddy Know-nothing"
7. "The Wizard's Chair"
8. "The Golden Hill"

FOR READING-AGES 8+

¹ *The Land of Youth Series* (Nisbet)

1. "The Secret Name"
2. "The Squirrel who was a Wonderful Jumper"
3. "The Queen whose Nose was Three Yards long"
4. "The Donkey who lost his Tail"
5. "The Little Dancer"
6. "Grunling the Dwarf"
7. "The Man who sold his Heart"

¹ Questions set on these books are given in the Appendix.

8. "The Poppy, the Lily, and the Rose"
9. "The King of the Black Mountains"

Bright Story Readers (Arnold)

1. "The Singing Chair"
2. "The Golden Apple"

Strang's Penny Series

- "The Seven Sons"

FOR READING-AGES 9-11+

STAGE III

- ¹ 1. *Beacon Study Readers* (Books I, II, and III). Ginn.
2. *Golden Journeys* (Story and Study). MacDougall.
3. *Friends Across the Sea Books* (Books I and II). Wheaton.
4. *Famous Fables*. Nelson.
5. *Read, Laugh, and Learn* (Book I). Grant Educational Co.
6. *Happy Traveller Readers* (Book I)

| | | |
|--------------------|---|----------|
| Setting Out—Girls | } | Blackie. |
| Broad Highway—Boys | | |
7. *Stories from Everywhere*, Rhoda Power. Evans.
8. *Pictorial Atlas of the World*. Philip.

FIRST STAGE

The Speedwell Primer, by Hume and Wheeler, has contributed to the work in reading with Senior children to an incalculable degree. The composition of the book from every aspect shows an inspired insight into the emotional and cognitive needs of the Senior non-readers. Its dignified emotional appeal is good for older children who feel so inferior at being unable to read. It gives an emotional impetus of confidence which carries the child over the infant-reader stage to the reading of more mature literature.

Children at this stage need to be taught sentence by sentence. When the short sentences have been learnt for three or four lines they can be copied out by the child and then cut up into separate words. These can be assembled into sentences first of all with the aid of the book and then with-

¹ Questions set on these books are given in the Appendix.

out it. An alternative method is to have the vocabulary of three or four lines printed on slips of thin cardboard in an envelope, the envelopes containing the vocabulary of the whole page in a larger envelope. The ability to assemble these separate words into coherent sentences will be a good index of how far the child has associated the word-shapes with their meaning. It is advisable to use script rather than cursive writing at this stage. A picture dictionary can be made of the vocabulary as they progress through the book.

SECOND STAGE

Blackie's Infant Readers are surprisingly mature in content in spite of their name. There has been no evidence of a negative attitude from the children when asked to read them. If attention is concentrated on the idea of improving reading-ability, that becomes the chief motivation to endeavour. In any case the children have not yet reached a degree of fluency which will enable them to read entirely for content regardless of the business of working out the phrases. The books are read silently. The child appeals to the teacher whenever a word is unknown. On these occasions—if the word is amenable to phonic analysis—it can be worked out with him. This amount of phonic training is usually sufficient with retarded seniors rather than long phonic repetitions giving practice in certain combinations. The duller children tend to become very confused with this kind of instruction. If the unknown word is not amenable to easy phonic analysis, at least the first letter will be. To train the child to sound the first letter only will help him towards making a guess at the word from the context of the sentence. If it is a busy moment for the teacher it is adequate just to say the word.

About six questions of a very simple nature, each of which can be answered in a single sentence and by direct reference to the book, are given to the child when the book is completed.

These answers should be first tried out by the child. If necessary he may refer to the reading-book for spelling and

even for accuracy of answer. Jotting-books and pencils can be used for the try-out. The work is then corrected by the teacher when the child presents it. From all points of view at this stage, it would seem advantageous simply to correct *for* the child rather than say, "This and this is wrong, go and put it right." When the sentences are corrected for spelling- and sentence-formation a fair copy can be made under a heading provided by the title of the reading-book and the date. This can be done in ink in the English exercise book. Thus an individual record of reading is kept with the rate of progress.

It is helpful if at the conclusion of each book the child reads a paragraph aloud to the teacher before going on to the next book. Until a reading-age of 8 years is reached some reading aloud is necessary.

This method will give the maximum help with written work at a time when it presents the greatest difficulty.

Instruction in handwriting can be given individually and incidentally during the marking of these exercises, one or two words being selected which contain demonstrations of the child's inability to form certain letters. This is of far greater benefit than wearisome copying from the blackboard in handwriting lessons. These latter have their place, but it would seem that one 20-minutes' lesson a week for formal handwriting is adequate.

Until a reading-age of 9 years is reached this method of reading short books and answering questions afterwards is observed. There is intensive reading and little writing. Progress after a reading-age of 8 years is reached is comparatively rapid, for there is then sufficient background of vocabulary to ensure that new words occur in the text less frequently and to enable much greater help to be derived from content.

THIRD STAGE

Books for children with reading-ages of 9+ onward fall into three groups—those consisting of one long narrative, those informative in nature and divided up into shorter

sections, and those consisting of a collection of short narratives. The second and third kinds would seem to yield best results with retarded children. Such books are set out in graded difficulty under the 9+ reading-age list. Working through these will often bring a boy's reading-age up to 13+ years.

The method adopted with the 9+ reading-age group differs from that employed for the lower reading-ages. It is necessary to have about three copies of each book which are set out on a table at the beginning of the lesson. The work to be done is printed on cards for the children's use. Card I is given to a child when he attains a reading-age of 9 years. On it will be a reference to various books, each of which he will deal with in turn. The first section of work will refer him to a book and tell him which page to find and which pages to read—three or four pages at the most. When he has completed his reading he will answer the two or three questions which follow on the card. These questions have been so designed as to minimize the abstract and emphasize the concrete. They do not make too much demand on the reasoning-ability but do test reading-comprehension in a direct manner. (Many of these books have questions printed in them, but in some cases these are unsuitable for Special-class children, although they might be useful for the higher standard obtaining in a 'C' class in a three-stream school.)

When the questions have been satisfactorily answered in a written form, the next section of work indicated on the card is undertaken. In this manner the child works through card after card.

This method allows of the more definite dividing of the work into a progression of separate units, while material in the books which is unsuitable can be left out. Dividing the work into units in this manner helps the teacher to keep a check on the progress of the child. In addition, it allows of a wider variety in literature sufficient to keep the whole class occupied simultaneously. If there are three of each set, it is unlikely that more than three children will want the same book at once. (Of all the books listed on pp. 91-92, the

only book which needs to be purchased in larger numbers is the *Speedwell Primer*. Usually a dozen of these are necessary to ensure sufficiency at the beginning of each year.)

This work occupies one hour every day, with the exception of the day spent at domestic or manual training. Other forms of English instruction such as practice in letter-writing, in handwriting, and in the reading aloud to the class by the teacher and better readers should be done at some other time. Composition lessons other than such exercises as the writing of simple letters will be rendered unnecessary by the adoption of the English individual scheme. If there is to be a marked rise in the reading-age graph at the end of the year, at least four hours each week must be devoted to individual work in English. Its aim is to create the facile reader who reads for pleasure. Quite stupid people can read for pleasure if they have been trained sufficiently.

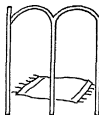
The children need the personal encouragement of the teacher as they progress from step to step. If they feel he or she is interested in their progress that will be sufficient encouragement and spur to endeavour.

PHONIC PRACTICE

Although most children will reach the Senior School with some phonic facility, a thorough revision of the simple phonics will be necessary. As the new class will begin in the term which ends at Christmas, the learning and revision of the phonic interpretation of the alphabet can be done chiefly as a handwork and art activity. This will lend dignity to an activity which is usually associated with the infant's departments.

It can be proposed that a child's decorated alphabet book, such as is sold at Christmas, should be made. This will involve the drawing of pictures and large letters and the words which symbolize the picture. The lettering is done on half-inch squared paper and is copied from the teacher's large drawing, also planned on squares. The letter can frame

the object of which it is the initial letter. Coloured pencils will give adequate colouring. The complete word will be in close juxtaposition. As each letter is completed, the technique of teaching it to a small child should be mastered. The children can be told that the old-fashioned way to teach sounds was to say "ber-a-ter—bat." Now we say "b (staccato) -at." The children can try to say the explosive labial without voicing. The teacher can challenge various children to make the sound for which 'b' stands. They are sure to say 'ber.'



MAT

This can be done with the 25 small letters. Usually the capitals will be associated already with these from previous experience.

Printing will be needed in all project-work, since the application of these lessons confines written work to labelling with short phrases. Such an exercise as simple lettering and illustration is a good introductory practice to this.

The pages, when complete, can be bound and the cover designed with a simple all-over pattern.

The printing will be best done in pencil and then inked over with ordinary nibs. Lettering-nibs would present an additional technical difficulty.

In addition to this the children can begin the construction of their own dictionary under alphabetic arrangement and classified according to a prearranged code. Headings for such classifications could be ships, aeroplanes, road-traffic, animals, jobs, other countries. One topic per month will suffice. The boys could make a practice of entering two or three words while the register is being marked. This was run as a handicap competition in one class according to the initial reading-level of each child. No help was given by the teacher, but the books were rapidly inspected once a week to ensure that each child had added some words and suitable encouragement been given. In the case of incorrect spelling,

warning should be given but no help. The spelling must be correct if the word is to score a mark.

These vocabulary dictionaries can be maintained throughout the year as a valuable aid to increased word-recognition.

The next phonic problem will be long and short vowels and the diphthongs. To give a set of exercises illustrating a method of teaching these by means of daily lessons of 20 minutes each and to enumerate the chief combinations which can be so taught will suffice. Suppose the diphthong 'ou,' 'ow,' is to be learnt. The children can be told that the sound for this week is 'ou,' sometimes spelt 'ow.' Then some easy examples such as 'now,' 'row,' 'cow,' 'sow' can be printed on the blackboard. Ensure that these are recognized by drill. "Show me 'cow.' Who can spell 'now'? Which one means a noise? Which one has horns?" etc.

Then ask the children to write the four words across one line near the top of the space in their writing-books.

Then print on the board some sentences which need to be completed by one of the four words, thus:

NOW ROW COW SOW

I am not making a ____

I am writing ____

The ____ gives us milk.

The ____ has ten babies.

The children read these sentences aloud, still leaving blanks. Then the completed sentences are written in their exercise books. The books can be marked as the children finish. This can be repeated for the following groups of words:

Loud, crowd.

Out, shout, about, pout.

Mouse, house, louse, grouse.

Owl, howl, growl.

Pound, round, sound.

Found, bound, hound.

Wound, ground.

Exercise on this sound combination would last approxi-

mately two weeks. A last revision exercise could be given in the form of simple rhymes thus:

I am going now
To milk the c____
If you hit the sow
There will be a r ____
The hungry wolf will howl
The angry bear will gr__ __
When the clock is wound
The ticks will s____
If you drop a pound
It will fall to the gr____
I will look all round
Until the penny is f____
They are shouting out loud!
Just look at the cr____!
This is the mouse
That lived in Jack's h_____

No help or preparation need be given to this except on request from boys with very low reading-ages.

This is departing from the principle of individual work, but phonic practice must be given orally and it is therefore necessary to make it a class exercise.

The sentences must in every case give an obvious clue to the word to be supplied and the general vocabulary confined to easier words. Of all the words in the rhyming sentences given above only 'hungry' and 'angry' need to be taught to children with reading-age of 7+ years.

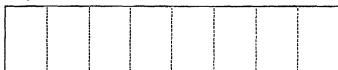
Other phonic units which can be so treated are 'oi,' 'oo,' 'oa,' 'ai,' 'ea,' 'ie,' the long and short vowels, the former with their terminal 'e,' the latter with double consonant.

It might profitably be added that it is useless to give rules for spelling to dull children. Only the more intelligent can profit by knowing that 'e' at the end makes the vowel long and "a short vowel is succeeded by a double consonant in a two-syllabled word." Dull children learn best by concrete exemplification with some technique such as sentence-

completion to compel added attention through selection for context.

The following sketches contain ideas that will prove helpful when alphabet books or books of any kind are being constructed. The technique is simple yet attractive and well within the scope of the Senior School Special-class child. The teacher in whose class these methods were tried out has found *Art and Craft Education*, a monthly magazine, published by Evans, of great help. In the Senior School the boys can make their own templates in thick paper or thin cardboard after the first effort at drawing the figure is complete.

ZIG-ZAG BOOKLETS WITH SHAPED COVERS



Strip of thin paper folded 7 times

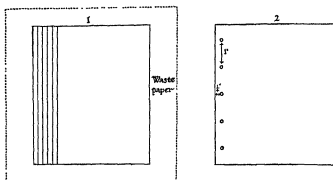


← Folded thus

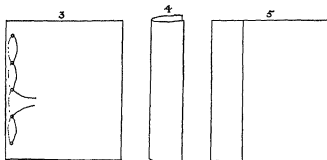
Suggested Covers



BOOKLET WITH STAB-STITCHING

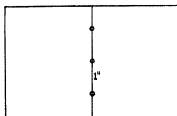


↑
 Sheets fanned out and pasted—knocked together,
 5 holes pierced with bradawl or compass point



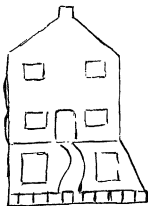
4. Shield made of Manilla Paper or Binding Cloth folded—pasted and slipped on. Put under pressure

HOUSE AND GARDEN COVER

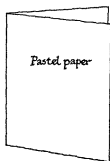


Folded pastel sheet at bottom and
3 folded white sheets on top.

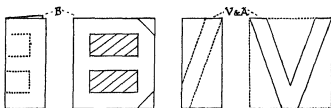
Three-hole stitching is made, needle
going from front to back.



Door, windows, path, and flower beds can be stuck on
with coloured paper or done with paint



PICTORIAL ALPHABET DECORATION



Cut letters from folded rectangle of paper

- A for anchor
- B for butterfly
- C for crown
- D for diamond
- E for elephant, etc.

The objects and animals for which the letters stand should be traced round templates on coloured paper and cut out. Letter and object (or animal) should be arranged on square of coloured paper and then stuck down. The 3 colours can be made to harmonize or contrast.

CUT PAPER FOR NOTE-BOOKS



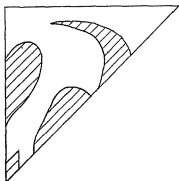
Book-cover should be squared up and leaf design repeated, by use of stencil

HISTORY NOTE-BOOKS



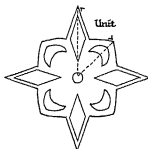
SOME COVER DECORATIONS

Cut paper pattern



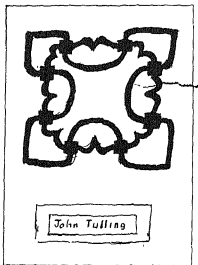
Shaded portions to be cut away
and design opened out.

No cuts should be made from top
edge.





Start with unit in the middle. Draw in straps to the edges *but not* the top edge.
Cut away shaded portion and open up the design.



PROJECTS IN SENIOR SCHOOLS

The teaching of history, geography, natural history, music, literature, and drama are the important aspects of cultural education which make for broadened sympathies, and a quickened understanding of society beyond the child's immediate confines. These subjects provide opportunity for emotional release through self-expression in an artistic medium. Such sentiments may seem to have little relation to these children when the level of their Intelligence Quotients is considered, but it is possible for very dull children to appreciate emotionally and to be happily self-expressive, provided that the intellectual content of the medium used is not too complex. The border-line defective is capable of lively, self-directed activity. He is liable to apathy under an environment which lacks appropriate stimulus. When children of average or superior intelligence are bored in class their capacity for surreptitious diversion is annoyingly wide, while unintelligent children retreat into sullen day-dreaming and seek to release tension in rebellion against authority in varying ways.

On the other hand, it is a very simple matter to bring about an elated state of mind in the average Special-class child. They respond immediately to optimistic appraisal from the teacher and will double their assimilation of knowledge and degree of endeavour under such conditions. Their need for appraisal is pathetically obvious. A sincere and consistent appreciation by their class teachers and head teacher will work wonders with their rate of progress.

The degree of spontaneous expression which is elicited in the cultural activities referred to above will be the measure of the emotional tone of the class. It will be a sphere of instruction where it is not necessary for the child to be informed that this is right and that is wrong, as is the case in English, arithmetic, and handwork. It will be rather, "Don't you think this would be an improvement?" The teacher develops what the child suggests in his first effort. Children

love this appreciative co-operation of the teacher in his efforts at dramatization or drawing. It makes them think their first idea or effort is really worth while if development of it is suggested by their teacher. They respond gladly. But there is a feeling of defeat if they are told, "No, don't do it in that way, but in this." It is always safe to assume with children of retarded development that the work they produce is the best of which they are capable. Destructive criticism sends them in upon themselves, and they cease to be outgoing and to desire to achieve. Self-doubt and lack of confidence can be set up with a glance or a tone of voice. They are, on the whole, incapable of assessing their work critically, and rely for their assessment on the opinion of some one they respect. A sense of failure and inferiority saps the productivity of even brilliant people.

In order that these conditions may be rendered possible, it is necessary for the teacher to set a standard in his or her mind which will not cause the impossible to be expected, yet which will exercise the powers of the children to a satisfactory degree.

The choice of theme need present little difficulty to the experienced teacher. It must be such as to make an appeal to the adolescent's interests, and it must not imply too much background of present knowledge. Every theme chosen should begin from some point in the children's present body of knowledge. Any common object of everyday experience opens up good possibilities for a subject which can embrace all the cultural activities for a term—chairs, tables, trees, houses, implements of all kinds, fairy stories, modes of transport, pottery, animals, folk tales, food, cooking, rings, the stars, sports. All these things can form the point of departure for a project of vital interest to rather dull adolescent boys and girls. At the end of this chapter are set out some projects which have been developed with children of Special Classes in this way.

If a subject is selected at random—say "Trees"—what possibilities lie in this? Immediately the historical aspect springs to mind—words such as palisades, forests, hunting,

rafts, primitive dependence on fire, trees used as rollers in construction of Stonehenge, charcoal burners before coal mining, primeval forests of carboniferous period, houses—the roof tree. This alone is material for the history lessons for a whole term. Trees are interesting objects for nature study as they are so massive and obvious and catch the child's interest because of their emotional significance in his early life. Horse chestnuts are easy to grow in the classroom or the school garden. One can be unearthed in the spring when it is just beginning to put forth the sturdy radicle. The plumule can be watched in its development during the summer. The children can be told how many years they must wait before they can hope to play 'conqueror' from its fruiting. In addition to such close observation the seasonal cycle of deciduous trees can be observed. The common trees, ash, elm, oak, poplar, lime, birch, willow, can be identified at their most characteristic periods, e.g., the willow in full leaf, the elm in faint spring green, the ash in fruit, the lime in flower. This will involve nature expeditions to the growing objects to smell and look and feel.

The significance of the grain in wood—the tree-trunk rings—can be pointed out. All these simple facts are comprehensible even to the border-line defective if his interest is caught.

Geographically, the tree theme can be used to refer to the more remote parts of the earth. On a blank map of the world, trees characteristic of the varying climatic belts can be shown—the giant mahogany, ebony, and rubber trees of the hot belts, the conifers and deciduous trees of the temperate zone, lumbering in Canada, wood-pulp and the power-driven mills leading to newspapers. The relation of trees to man can be shown simply in all these lessons.

If all this is done, what educational process has taken place? Just this—that the word 'tree' is now a richer concept in the minds of the children. The word now has more meaning for him in a way which is related to his own life-experience. Objects which he had taken for granted and had not even bothered to differentiate between will now be identified as individuals with special characteristics. As a

result of this increase in understanding he will be a more cultured person, which in psychological terms means a more secure person. The dissipation of ignorance is one of the major factors in the advance of civilization.

So far the kind of information to be taught has been discussed. With retarded children the way in which it is taught and applied has need for careful consideration. In an hour's lesson only 15 to 20 minutes should be spent in exposition by the teacher. This should take the form of a simple narration of facts illustrated by quick blackboard sketches or pictures or models. The remainder of the hour should be spent in application of the lesson—either modelling in plasticine, or illustrating in pencil or pen-and-ink sketches the salient feature of the lesson. The whole can be rounded off by the printing of one short sentence carrying the gist of what the picture illustrates. The teacher provides the copy for this application. An example of this can be seen in the project on transport given at the end of this chapter.

Retarded children can take in fewer facts than brighter ones and need longer to assimilate them. The actual verbal part should therefore be reduced to a minimum, written language even to one sentence per lesson, while the concrete application occupies most of the period.

Some pictures lend themselves to cut-out effects, *e.g.*, where there is an irregular skyline or where the group of objects form an integrated whole, such as men on a horse. The boys derive satisfaction from mounting their drawings when cut out on black backgrounds. The book can be made previously out of black paper, and the work, when finished, stuck in, the whole when complete forming a 'tree book,' or a 'transport book.' This departure from the usual exercise book adds incentive by novelty of effect. The slogan summing up the lesson can be printed in white pencil underneath. Illustrations gathered from other sources can be pasted in too.

More permanent models in papier mâché and wood can be constructed as a collective class effort but should not take up too much time in any one week. Permanent use can be

made of these models. If a large model of the Thames estuary in connexion with a project on shipping is made, it can be used subsequently as a number game with dice. A progression of numbers can be pasted on connecting the various ports, shallows, etc., e g., *Gravesend, collision with ferry. Go back to Woolwich for repairs. Tower Bridge—not open. Wait three turns. Purfleet—tide favourable. Take two turns.* Another instance is furnished by a relief model illustrating methods of overcoming contour in transport—tunnelling, funicular, cuttings, etc. This provides excellent foundation for a similar number game. This is mentioned because to undertake the construction of larger, more permanent models is extremely valuable as an illustration but involves the expenditure of additional teaching-energy. This is more justified if afterwards the model can be used for a good purpose. For the purposes of illustration and application the children's individual efforts lesson by lesson are of far greater importance.

Collecting of pictures from external sources to form a book round a theme does not seem an activity so worth while in the case of Special-class children. Their power of selection and gaining access to sources is limited to such an extent that little advantage is reaped. They seem to need direction in these activities. The more intelligent children, retarded for reasons other than innate dullness, can be encouraged to do this as a purely individual effort with benefit.

To sum up, it might be said that for children who are sufficiently retarded to need education in a specially selective class the verbal content of lessons must be limited to the necessary minimum. This does not mean that any oral contribution by the children should be disregarded on those occasions when it will be spontaneously offered in such lessons.

DRAMATIC LESSONS IN SENIOR SCHOOLS

Spontaneity of verbal expression can be trained and encouraged in the drama lessons. For all Special-class children it is so much waste of time to set them to learn parts of a previously composed play, because of their inability to read

fluently, and the difficulty they will have in interpreting the dramatic significance of the words. Dramatic periods should be round stories and long narrative poems. Glove puppetry is a good introduction to such lessons. The children are quite capable of originating their own words and movements and should be left to practise this in sets of 3 or 4. Eight folding puppet theatres are necessary for this if real benefit is to be derived. The whole class can prepare their plays, 3 or 4 children in each group. As each group is ready it can volunteer to act to the whole class. A whole afternoon is necessary for such a lesson, and the teacher must be prepared for much bustle, movement, and noise. There will be scenery to prepare and the play to rehearse before the break, when the children return to the class-room and the formal presentation by each group can take place. It will be necessary in selecting groups to distribute the better I.Q.'s to the greatest advantage.

The teacher need take no active part during this period beyond offering incidental suggestions by way of encouragement. If puppetry is to be of real value this method of enabling all the children to be active at once is a necessity. The theatres for group use need not be so well-equipped as the main one for demonstration purposes. A design for a theatre for dangling puppets was shown in the Junior School section. The substitution of a back curtain instead of a rigid board would render these suitable for glove-puppetry practice.

In telling the story which is to be eventually dramatized the teacher should use the form of direct report when narrating conversation and bear in mind the dramatic form it will be resolved into. She can thus indirectly suggest the speech and grouping in scenes.

Much drawing and handwork can arise out of the needs for puppet stage-properties.

In this way plays can be evolved which the children can produce with themselves as actors.

Puppetry enables children to project or objectify the characters of the play—their motivation and reactions. They visualize them as symbols outside themselves which

they can control. This renders creative dramatic activity easier, and when they come to act themselves, it will seem to them that their puppets have taught them what to say and how to move.

SOME PROJECTS WHICH HAVE BEEN TRIED OUT AND
FOUND SUCCESSFUL

FOR GIRLS

The Willow Pattern Plate. (Westborough Senior Girls' School—Director, Miss N. V. Macintosh, B.A.)

The story of the Willow Pattern Plate is set out admirably in a volume of the St George's Series, published by Alexander Moring, Ltd. Material was also gathered from Honey's *English Pottery and Porcelain* (Black).

The Development of the Project

- A. *Literature.* The story and its dramatization.
Willow Pattern rhymes.
Chinese poems and stories.
 - B. *Geography.* The potteries in England.
The potter's craft.
 - C. *History.* The Chinese ancient civilization.
Marco Polo's adventure—several lessons—the Great Wall—the days of the gorgeous East—present-day China.
 - D. *Craft.* Preparation of books for Chinese anthology.
Needlework—Kimonos in white and blue Winceyette decorated with *motifs* from Willow Pattern design as repetitive patterns round sleeve border and round neck and front and hems (used in production of play and afterwards sold as dressing-gowns).
A Willow Pattern rug.
Table runners, aprons, and feeders; all embroidery designs based on Willow Pattern.
- Nature Study.* Observations of young willow-, almond-, apple-trees planted in school garden during the autumn.

UNITS FOR CROSS-STITCH DECORATION

Bird



Willow tree



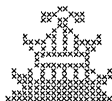
Apple tree



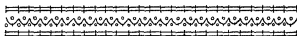
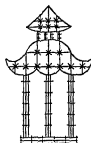
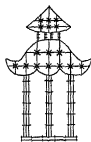
Bridge



Pagoda



DESIGN FOR END OF RUNNER



It need not be mentioned, perhaps, that the *Children's Encyclopædia* will give much material for these lessons.

A Scottish Project

(By Miss Macintosh)

Reference books for Clans and Highland Dress.

1. *The Scottish Clans and their Tartans* (Johnston).
2. *The Scottish Tartans* (Renton).

Tartan paper for decorated book-covers can be obtained from Strakers, London.

The Development of the Project

- A. *Literature*. The numerous Scottish poems and ballads.
- B. *Music and Dancing*. Highland fling and Scottish reels. Scottish songs.
- C. *Geography and History*. The Highlands—their past and present significance to the people of England, *i.e.*, in the past the stronghold of nationality, wild and lawless. Now the haunt of the salmon-fisher, the deer-stalker, and those who love quiet and peace and nature. A holiday resort for the sportsman.

The Clyde—Glasgow region where most of the people live. Engineering and shipbuilding. The place where wealth accumulates but also locality of hopeless poverty. Compare the crofter with the industrial worker. What is happening to the crofter?

Compare traditional Highland dress with everyday dress of a man of Glasgow. How much it is worn now. Its significance and composition.

Needlework. Dressing of dolls in Highland dress. Patterns of garments to be cut out in paper and drafted into needlework book.

| | |
|------------------------------------|--------------------|
| <i>Items</i> . White undergarment. | Black velvet coat. |
| Kilt. | Sporran. |
| White blouse. | Plaid. |
| Lace ruffle. | Socks and shoes. |

Glengarry.

Giving practice in hemming, pleating, gathers, French seam, knitting, over-sewing and back stitching, run and fell seam, loop and button, tapes, hook and eye, press fastening.

Art and Craft Work.

Making of tartan rug. (Macintosh tartan chosen.)

Tea-cosy and kettle-holder in tartan (holder in form of glengarry).

Feeders decorated with thistles, etc.

Dramatization.

Scenes from *Wee MacGregor* (The Scots Pictorial Publishing Co.).

A coloured picture of Wee MacGregor with a tartan scarf the colour of the house to which child belonged decorated the outside of exercise books.

In projects of these kinds which embrace most of the time of the children, apart from that spent in English and arithmetic, there is little need to differentiate between the times devoted to the specific subjects in the afternoons. Long periods can profitably be devoted to any activity which has caught the interest of the class. One week the historical aspect will be enhanced—perhaps for several weeks. With retarded children too much mixture makes for confusion. If the potteries are dealt with during the same time-interval as the adventures of Marco Polo, Staffordshire may be located in far Cathay in their later stores of knowledge. This fact constitutes the advantage of concentrating on differing aspects of the project at successive stages in the year rather than running them concurrently.

FOR BOYS

History of Transport

This theme is hackneyed, but its method of treatment need not be so.

The application of these lessons throughout were sketches copied from large illustrations made by boys gifted at drawing in the 'A' classes. The boys made their own time-charts in book form. Large sheets of black paper were folded to

form a book about the size of a Philip and Tacey Atlas. The drawings were stuck in these in their chronological order. Along the wall a strip of black paper 1 ft. 6 in. \times 8 ft. was pinned to form a time-chart similar to the boys', on which good (not always the best) individual efforts could be pasted.

About eight events indicative of progress were selected, and these formed the basis of the term's work. The first drawing indicated the state of the roads before Macadam began his work—it was a picture of Dr Foster (who 'went to Gloucester') falling into a puddle right up to his middle, his arms flung above his head, his umbrella and doctor's bag hurtling through the air. In this lesson the danger of roads with deep holes and ruts to pedestrians and wheeled traffic was pointed out. Underneath the drawing was printed "Before 1815 the roads were like this." This amount of written expression is all that is advisable, for the class contained at least 10 boys with reading-ages of 7 years or less.

The second picture was one of a man sitting by the roadside beside a pile of stones, grasping a hammer in one hand and pointing with the other to his wide-open capacious mouth. A gentleman in the dress of the beginning of the 19th century is bending towards him. From the gentleman's mouth a balloon announces that he is saying, "I told you to make the stones small enough to go in your mouth." This is Macadam upbraiding a stone-breaker for not breaking the stone into small enough pieces, while the stonebreaker is revealing by the size of his toothless mouth that his work is in accordance with regulations. It illustrates the new principle of road-making which was described by the teacher. Underneath was written: "1815—Macadam makes better roads."

Each of these drawings was originated by a boy in the school after an explanation by the class teacher of the Special Class. The remainder were suggested by existent illustrations. There were the stage-wagon, the stage-coach; James Watt riding to London—a pillion passenger on a horse—Stephenson's "Rocket," a more modern engine, and a sketch of one of the latest stream-lined locomotives. Throughout

the course it was the effect of improved travel on the lives of the man in the street which was stressed. The times taken over the journey between Southend and London were compared at each stage. The use of inns with stabling—an innlicence was granted only to houses where there was accommodation for man and beast—the frequency of highway



robbery, and such incidentals were introduced. 1815 and 1937 were the only dates mentioned.

The boys were very well pleased with their efforts at illustration. When the pencilled effort was approved, they inked the outline and cut out the drawing, pasting it on the black background—one drawing per page. The slogan underneath was made an exercise in printing. Some of the drawings were amusing caricatures of the originals, but provided the teacher regarded them with respect, the boys were content. In these lessons the emotional acceptance of their work is necessary, otherwise its function as a mnemonic fails to operate.

It need not be stressed that the children's own efforts at reproduction are of vastly greater educative value than the colouring, etc., of copies duplicated by the teacher.

Drawing by boy, aged 11 years, I.Q. 70.



JAMES WATTRIDE STO LONDON

CHAPTER VII

ARITHMETIC IN JUNIOR AND SENIOR SPECIAL CLASSES

THE arithmetic ages of children in Junior Special Classes at the beginning of the year lie for the most part round the 6+ and 7+ year levels, in Senior Schools round the 8+ and 9+ levels measured by the test of mechanical arithmetic used in this Borough. Approximately 50 per cent. of the children in Junior Classes will need the course of instruction which is commonly taught in the last year in the Infants' Schools, while those in Senior Special Classes will need for the most part the course for Junior Schools. Statistics of arithmetic ages obtained in Special Classes in September, 1938, showed the following percentages at the various age levels:

PERCENTAGES OF CHILDREN AT VARYING ARITHMETIC LEVELS IN
SOME JUNIOR AND SENIOR SPECIAL CLASSES: 221 JUNIORS,
218 SENIORS

September 1938

Years

| Arithmetic age | 6·0- 6·9 | 7·0- 7·9 | 8·0- 8·9 | 9·0- 9·9 | 10·0- 10·9 | 11·0- 11·9 |
|-------------------|-------------|-------------|-------------|-------------|---------------|---------------|
| Juniors | 53% | 33% | 10% | 4% | | |
| Seniors | 7% | 20% | 40% | 24% | 9% | |

The organization of an individual method of instruction in number took place in three stages.

The first stage dealt with the means of diagnosis. The work undertaken by the Research Committees in drawing up a normed test of mechanical arithmetic is described in Chapter III, which explains the system of testing. The test, of course, gives the attainment age-levels of a child who has progressed normally. The arithmetic age of any child will indicate which of these processes he has mastered and those which he cannot yet do. It has been emphasized that a method of diagnosis which has no counterpart in remedy is almost valueless to the teacher of a class of thirty children. Accordingly the next stages of organization involved the gathering together of apparatus, text-books, and sum cards which were necessary to teach children of varying arithmetic ages.

The second stage of this work took the form of a display of arithmetic apparatus, text-books, and number games suitable for the instruction of retarded children. Most of this was gathered from the Infants' Departments. The Psychologist visited each school in turn, making a selection to avoid duplication. The material was set out on long tables in progressive stages and labelled according to the arithmetic age for which they were suitable. The exhibition was open to the teachers for a week. At the end of this time the three Research Committees met and made a selection for a sample requisition list considered suitable for Junior and Senior Special Classes. As far as possible published material was selected, but selection was also made from original sources, where these were considered of high value. Most of the original contributions were fashioned in wood, and arrangements were made for these to be reproduced at cost price by the carpenter at the Borough Depot.

The third stage was undertaken by the Psychologist, who drew up requisition lists which would be necessary for classes beginning to organize work in number. As far as possible the necessity for making apparatus was avoided. The published material and its allocation to arithmetic age year-levels can be summarized as follows:

ARITHMETIC AGES 6·0-6·5 (Junior School only)

Establishment of number concepts, composition of number.
Introduction to four rules in length and money.

Monteith's *Welbent Scheme of Individual Work in Number*
(Arnold).

Stage I. Steps 1, 2, 3, 4.

Stage II. Steps 1, 2, 3, 4.

Stage III. Steps 9.

Stage IV. Steps 1, 2, 3, 8, 10.

Stage V. Steps 4, 8, 9, 12.

Larcombe's *Arithmetic Cards for the Very Young*, Grade II
(Evans).

ARITHMETIC AGES 6·5-7·0 (Seniors and Juniors).

Establishment of addition with carrying-figure.

Arithmetic Cards for the Very Young, Grade III.

Welbent Practice Arithmetics, Book I (Arnold).

Oval Pictorial Arithmetic, Sets I and II (Charles).

Wisdom's *Arithmetical Dictation*, Book I (U.L.P.).

ARITHMETIC AGES 7·0-8·0

Establishment of subtraction with equal additions and
multiplication with carrying-figures by 2, 3, 4, 5, 6.

Larcombe's *Practice Cards for the Very Young*, Eighth Year
(Evans).

Larcombe's *Revision Cards for the Very Young*, Eighth Year.

Welbent Practice Arithmetics, Books II, III, IV, V (1st half).

"A.L." *Number Wheels for Individual Work* (1A).

"A.L." *Number Wheels for Individual Work* (2).

Selections from Text-books.

Uphall Test Cards, Set A (Charles).

ARITHMETIC AGES 8·0-9·0

Establishment of division with carrying-figures. Addition

and subtraction of shillings and pence. Multiplication and division by 7, 8, 9, 10, 11, and 12.

Welbent Practice Arithmetics, Book VII.

Selections from Text-books.

Foundations of Arithmetic, Book I.

ARITHMETIC AGES 9·0-10·0

Establishment of four rules in pounds, shillings, and pence.

Welbent Practice Arithmetics, Books XIII and XIV.

Foundations of Arithmetic, Book II.

B. and A. Junior Arithmetic, Book I.

ARITHMETIC AGE 10+

Establishment of four rules in length and capacity.

B. and A. Junior Arithmetic, Book II.

Modern Guide Arithmetic, Book IV.

Larcombe's *Supplementary Practice Arithmetics*, Book III.

Leslie and Matthias' *Workaday Arithmetic* (Cassell).

The phrase "Selections from Text-books" refers to the four books which were cut up and rearranged to give more intensive practice to each stage. These books were:

Modern "Guide" Arithmetic, Book I.

London Arithmetic, Book I.

B. and A. Junior Arithmetics, Book O.

Larcombe's *New Arithmetic for Junior Schools*, Book I.

This was an effort to meet the problem often raised by teachers that retarded children need longer practice to 'stamp in' a new process before they pass on to the next. It is impossible to set out here how the pages were arranged in order after they were cut. An example would be the grouping of the shopping-sums from the *Modern Guide* and the *London Arithmetic*. It is not a difficult matter to carry out this arrangement if one has clearly in mind the curriculum of the years 7-8 and 8-9 as indicated by the test.

This selection of published material was made with a view to the difficulties which the dull children and the poor readers meet in coping with the printed exercises. Text-books which demanded too high a standard of attainment in reading or too high a degree of intelligence were rejected. To a certain extent the children must be coached in the words commonly found in the printed exercise, such words as—'altogether,' 'more,' 'how many,' 'how much,' 'from and take.' Wisdom's *Arithmetical Dictation* (Book I) is helpful in this respect.

In addition to text-books and sum cards, materials for computation in concrete media were requisitioned. A complete requisition list of these will be given at the end of the chapter, but it is necessary to explain here how these were allocated and the use that can be made of them.

It is suggested that every child with an arithmetic age of less than 7 years should possess:

- 1 *Scholar's Tidy Box* containing
- 2 sets of digits from 0-9.
- 10 copper studs.
- 5 sixpences, 5 farthings, 5 halfpennies, 1 shilling, and 12 pennies.
- 1 *Envelope* 10×8 in. containing
- 2 cards or stiff paper folder stamped with double domino pattern thus:



- 1 ruler marked in inches and quarter-inches only.
- 55 ring counters.
- 20 ordinary counters.

Each child with an arithmetic age of 7+ years has:

- 1 *Scholar's Tidy Box* containing
- 2 sets of digits.

24 inch-sticks.

Copies of the four signs.

1 *Envelope* containing

24 pennies, 5 sixpences, 3 shillings, 1 florin, 1 half-crown,
6 halfpennies, 8 farthings.

1 ruler marked in inches and quarter-inches.

Other items of apparatus for class use will be mentioned in the section which follows dealing with the types of concrete application of number which can be used in instruction.

Perhaps the most important aspect of number is dealt with in the instruction which precedes the 7-year level of attainment. This is the time when the composition of number is established. Grown people who still count on their fingers under the bridge-table are instances of those whose number concepts were never thoroughly established. It is much more important that a child should realize almost automatically that 9 and 7 make 16 than that it should be able to add up hundreds, tens, and units with carrying-figures. If the composition of ten and the composition of numbers less than ten have been thoroughly mastered to the degree of automatic response it is an easy step to the composition of 20 and still easier to reach to the quick computation of numbers above 20. If a child is learning to add with carrying-figures at a stage when he is still counting laboriously on his fingers or with some other aid, he is being taught a mechanical trick prematurely. It is worth while persisting at the more elementary composition of number in the case of borderline defectives, *i.e.*, all children with I.Q.'s less than 85 until the last year in the Junior School. There is much to do at this level which can give variety to the work. All the four rules can be exercised, but at a level of complexity which is within the child's grasp, and in addition there is practical work with money, weight, capacity, and length, which again can be conducted at an elementary level. For these children the groundwork, usually accomplished by the child of average intelligence in the two years of the Infants' School course, will begin in the Junior School and spread over the

first three years in this department. If by the age of 10+ years these children are adding tens and units with carrying-figures without too much strain in computation, their stage of attainment will be satisfactory in so far as the mechanical processes are concerned.

In the case of more intelligent children the move to the arithmetic implied in the last part of the year 6-7 in the test should not be made until the teacher is satisfied that there is facility in addition above the stage of laborious 'counting,' i.e., that the composition of 10 and its use in adding larger numbers is well known. In the case of dull children it will take two to three years to establish this after the chronological age of 7 years has been reached.

In number more than any other subject, intelligence and emotional balance set the pace of real progress. A good rote memory, which is enjoyed by some very dull children, can assist rate of progress in reading-accuracy, but figures are abstract symbols much more remote from experience than words. Memorizing-tables have less conceptual significance than learning to read or recite a poem, if the child has not become well acquainted previously with what each number means in relation to other numbers.

Numbers rely ultimately on their relation to one another for significance. One hundred has no significance except in relation to the numbers which are smaller than itself and in a secondary way to numbers which are larger than itself. It is this exercise in relativity which forms the groundwork of learning to compute, and in consequence it is the composition of number which forms the foundations upon which the structure of the more complex processes can be built. The early significance which will attach itself to the four signs will be that of making numbers larger or smaller by partition or encroachment. It is these two kinds of activity which give practice in the composition of number.

In the case of Special-class children, practice in number composition will need to be maintained throughout their school career, and it is for this purpose that a number-games

lesson once every week was established as a matter of routine. A special section will be devoted to that later in the chapter, describing the number-games possible and the practice-effects they will give.

The verbally expressed problem, such as "John had 5 nuts, he picked 6 more, how many has he now?" must attend upon the reading-ability of the child—not only his reading-accuracy but also the level of his reading-comprehension. The same sort of problem is placed concretely before the child if he is told to slide 5 beads along his counting-frame and then told to put 6 more with them and say how many he has moved now. The fact that another day he may have shells and another day sticks and another day ring counters merely adds interest in variety of stimulus—the arithmetic problem remains the same. This is stressed in order to point out that it is the arithmetic structure of the problem which is important, not the social setting. The only difference between the verbally expressed problem and the problem in partition or encroachment of concrete objects is that the former involves an exercise in reading-comprehension over and above the arithmetic insight. Teachers who have children with reading-ages below 6 years need not fear that their children cannot do problems. The only difference will be that the problems must always be presented in concrete media through coins, counters of various kinds, sand, paper, water, etc. Number games will help in giving additional significance to the purpose of number symbols.

Number has become divorced from reality when subtraction with carrying-figures in hundreds, tens, and units is taught as a mechanical trick before the relative sizes of hundreds, tens, and units have been concretely experienced and familiarized.

THE METHOD OF INSTRUCTION

The allocation of time in one week to number in Junior and Senior Special Classes is suggested as follows:

| JUNIOR CLASSES (45-minute lessons) | SENIOR CLASSES (45-minute lessons) |
|---|---|
| 3 Mechanical Arithmetic | 2 Mechanical Arithmetic |
| 1 Problem Arithmetic | 2 Problem Arithmetic |
| 1 Number Games (including practical work in weighing and measuring) | 1 Number Games (including practical work) |

The first step in organizing individual work in number is to discover by means of the arithmetic test what level of attainment each child has reached. It is possible to predict this in class percentages from the statistics above. The next stage will necessitate deciding what kind of activities will be useful for teaching number at these various stages. This will determine the requisition list and the preparation of material for apparatus. It was decided that it was necessary to have at least 5 different kinds of objects which would act as 'counters.' Coloured inch-sticks, cowrie shells, ring counters, ordinary counters, and beads of several kinds were chosen. This would allow for variety in becoming familiar with number concepts and the composition of number.

ACTIVITIES GIVING PRACTICE IN NUMBER CONCEPTS

(i) Bead-threading in twos, threes, etc., the groups of round or square beads punctuated by a bamboo reed. Labelling with digit tablets.

(ii) Progressive bead-threading from 1 to 5 and 6 to 10, each amount punctuated by bamboo reed, *e.g.*, 1 bead—1 bamboo—2 beads—1 bamboo—3 beads—1 bamboo, etc.

(iii) Irregular bead-threading—according to pre-arranged digit tablets, *e.g.*, 5—3—1—2—4 punctuated by bamboo reeds.

(iv) Making new number patterns with shells and china or glass beads. This can be done quite effectively if a slab of plasticine is prepared in which the arranged shells or beads can be embedded.

(v) Arranging ring counters on copper studs and labelling with digits in a similar fashion to bead-threading.

(vi) Sorting objects into boxes divided into 10 compartments, *e.g.*, 1 penny, 2 shells, 3 farthings, 4 ring counters, 5 copper studs, 6 shells, 7 blue beads, 8 red beads, 9 ordinary counters, and 10 sticks, and labelling each compartment with its correct digit.

(vii) Making dot patterns thus:

$$\begin{array}{c} \cdot \quad \cdot \\ \cdot \quad \cdot \end{array} = 2$$

$$\begin{array}{c} \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \end{array} = 3, \text{ then joining the dots}$$

with lines $_$ and $\overline{\cdot}$ and colouring with crayons. The two dots and the three dots will be in different colours. Later this can be used for composition of number thus:

| | | |
|---|-------|---|
| $\begin{array}{c} \cdot \quad \cdot \\ \cdot \quad \cdot \end{array}$ | $= 2$ | The dotted lines show the sub- sequent join- ing to form a nine pattern before colour- ing. |
| $\begin{array}{c} \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \end{array}$ | $= 3$ | |
| $\begin{array}{c} \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \end{array}$ | $= 4$ | |
| $\begin{array}{c} \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \end{array}$ | $= 5$ | |
| $\begin{array}{c} \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \\ \cdot \quad \cdot \end{array}$ | $= 6$ | |

There will usually be 8 or 10 children in a Junior Special Class who will need these activities, and just a few in Senior Special Classes who will benefit by a course of this. The large Bankside peg-board (Philip and Tacey), with 144 pegs, is requisitioned for number-concept work in the Senior School. A boy of 11+ years who is still hazy about the relative sizes of numbers can be set to work to construct the same number in as many ways as possible with his differently coloured pegs and indicate each combination with his digits, tablets, and a sign. He can then dispense with the pegs and use the tablets only, seeing how quickly he can put them in place once they have been shuffled. There will be in all probability two or more boys in each Senior Special Class who will need practice in number concepts and composition. Number 7 of the hints set out above can be used to good purpose with these extremely retarded Seniors.

ACTIVITIES GIVING PRACTICE IN NUMBER COMPOSITION

(i) For composition of numbers up to 5, arrange beads of two colours on beadless bars, thus $4+1=5$ —4 blue beads, 1 red bead, and digit tablets. This can be repeated for any number combination up to 10. After 10 and up to 20 two beadless bars will be necessary. For totals larger than 10 always the one beadless bar is made up to 10 beads and the odd

ones are left on the other bar; thus: $7 + 6 = \overbrace{7}^{\text{one bar}} + \overbrace{3+3}^{\text{other bar}} = 13$.
Blue Red
Blue Red Red

(ii) Bead rails containing 20 beads, in 2 colours, 10 in each colour.

(iii) Arranging counters on previously drawn plans of number-concepts, thus:



Put out 4 counters. How many more to make 5?

Place the last counter. This can be repeated for 10 and 20 totals.



(iv) In the second stage of number composition up to 10 the top and bottom sections of the domino pattern will be used for the two amounts respectively—thus:

$$\begin{array}{c} \bullet \bullet \\ \circ \circ \\ \bullet \bullet \\ \circ \circ \\ \bullet \bullet \end{array} \begin{array}{c} 2 \\ + \\ 4 \end{array} = \begin{array}{c} \bullet \bullet \\ \bullet \bullet \\ \bullet \bullet \\ \circ \bullet \\ \circ \bullet \end{array} = 6$$

In each case the five will be completed and treated as the basic concept, just as 10 is for totals larger than 10. Thus the

child sees $2+4=5+1=6$ rather than saying two and counting up to six, pointing to the four counters. Some children cannot even say 'two' as a starting-point, they have to begin counting from the beginning to ascertain that there are six counters. These children need an intensive course of number-concept work and are not yet ready for number composition.

The large board giving 10 pegs arranged in this way for teacher's demonstrations is very useful in connexion with this activity. Although number-concepts need to be taught with as wide a variety of objects and arrangements as possible, this is not necessary with number composition. If number-concepts are well established, practising number composition will be greatly facilitated. If a child has experienced the grouping of 7 objects sufficiently, it will be a very short step for him to deduce or observe that $5+2=7$. Well-established number-concepts render number composition yet more self-evident, and two or three devices which present number composition concretely will suffice, *e.g.*, beads of two colours and beadless bars, a rail of 20 sliding beads in two colours, and the domino blanks already referred to. The teaching of number-concepts and number recognition is instruction in the basic language of arithmetic, the teaching of number composition is instruction in the inter-relation between the concepts. It is not an exaggeration to say that these early stages of instruction are the most important for the everyday use of arithmetic. For composition of numbers larger than 20, bundles of tens made up in inch-sticks fastened with elastic bands can be used. The children can use their digit tablets and signs to show the sum after it has been expressed in concrete form.

The long bead-chain made up of 100 giant beads, 10 of each colour, is an invaluable aid in familiarizing children with the larger numbers. Another device which attracted much attention at the exhibition was a wooden base supporting 10 vertical rods for the purpose of holding 100 cotton-reels in spikes of 10 different colours. This and the long bead chain will demonstrate 100 in two kinds of groupings. In the Senior School the 144-peg board demonstrates the

composition of numbers up to and over 100, and there is no need to introduce brightly coloured beads and cotton-reels in this department.

Tables. The approach to the formal building up and memorizing of multiplication tables can be made through bead-threading with differently coloured beads in twos, threes, etc., and by this means learning to count in twos, threes, fours, etc., up to the twelfth grouping. Long strips of cardboard can be prepared, marked across with lines at intervals where the termination of each group of beads will be, and numbered 2, 4, 6, etc., or 3, 6, 9, etc. A lace is fastened at the end nearest the smallest number with the tab-end free for threading.

A second stage after bead-threading and -counting is provided by the use of a shilling Lotto set. This contains a sheet of squared paper with the numbers 1-89 set out in sequence, and some round wooden tablets with corresponding numbers cut in relief. The children can place the appropriate number tablets showing the answers to the table in question, *i.e.*, 2, 4, 6, 8, etc., or 3, 6, 9, 12, etc., on the appropriate squares. They can then see the empty spaces between, and the relevancy of the answer is thrown into relief. The twelve tablets required for the table should be extracted from the box before the arranging begins. When this sequence has been familiarized the child can arrange the wooden tablets in order without the aid of the numbered sheet. A last device can consist of placing digit tablets under the wooden ones, indicating how many twos or threes go to that particular number.

After this is sufficiently practised some kind of bead frame can be used for building up the table formally. A strip of stiff strawboard can be pierced 12 times at intervals in two vertical lines. The distance between the two vertical lines should be sufficient to accommodate four beads without overlap if it is the 2-times table, six beads if it is the 3-times table, and so on. Twine can then be threaded across in front and down at the back continuously, each thread across bearing the number of beads designated by the table. The

round glass or china beads are best for this purpose. The child can then slide the threes in turn from left to right as he builds up his table in the formal fashion, thus:

$$1 \times 3 = 3.$$

$$2 \times 3 = 6, \text{ etc.}$$

Cards showing this form of stating the tables should be ready, so that the child can copy it down and insert the answer with the help of his bead-card.

The method of instruction in the Special Class will be group teaching followed by exercises. The exercises before an arithmetic age of 7 years can be written on the board for each group in the absence of organized individual work. Such sum cards as *Arithmetic Cards for the Very Young* (Grade II) are an adjunct after practice with concrete media and digit tablets and signs.

Half the class in the Junior School Special Class may have an arithmetic age above 7 years. These will be able most easily to carry on with sum cards once they have grasped the process, and these should be arranged so as to give intensive practice at each stage with revision exercises at intervals. Since the introduction of new processes will take place at a slower rate with Special-class children, it is necessary to rearrange text-books and sets of sum cards which have been designed for children capable of normal progress. It was for this reason that the four text-books suited to the 7-8-year level and Larcombe's *Sum Cards for the Very Young* were rearranged to cover the years 7-9.

In the Senior School Special Class the children will fall mainly into three groups with arithmetic ages of 7+, 8+, and 9+ respectively. There will be an odd child or two at the extremes of these groups. The individual exercises which are used in the Junior School for the children with arithmetic ages of above 7 years will serve for these children too, and it would seem essential that the schemes should be the same for both departments to ensure that there is unbroken continuity in the material presented to the child when he changes from the Junior to the Senior Department. In no subject is this

more important than in arithmetic, where progress is only possible if a certain logical sequence is observed.

It would seem unnecessary to teach the retarded child in the Senior School the process of long division. It is the kind of sum he will not require in after-life, and the complexity of intellectual operations involved is beyond the capacity of the border-line defective and the dull child. For these children it will subserve a much more useful purpose if they work through such a text-book as Leslie and Matthias' *Workaday Arithmetic*—First Book—(Cassell) during the last six months or so in the Senior School. This will give them practice in arithmetic applied to everyday life, and they should be able to work at such a level of complexity, if they have reached an arithmetic level of 10 years.

PRACTICAL ARITHMETIC AND NUMBER GAMES

It is suggested that each child should have an opportunity of practising the manipulation of weights and measures and buying and selling at least once a month. It will be remembered that in both Junior and Senior Special Classes it was suggested that one lesson per week should be devoted to number games and number activity generally. In such a lesson there will be of necessity such bustle and noise as is compatible with free discipline. During this lesson one-quarter of the class can work through previously prepared exercises in weighing, measuring, and shopping. The remaining three-quarters of the class can be occupied with number games which will speed up elementary computation by virtue of added emotional incentive. This arrangement will allow each child to practise with money and weights and measures at least once every four weeks.

APPARATUS FOR WEIGHING, MEASURING, AND SHOPPING (JUNIOR SPECIAL CLASS)

One pair of scales (not spring balance) with a set of weights such as is used in a grocer's shop; 1 stone of silver sand and securely sewn cloth bags; long strips of paper (cut from

wall-paper roll); one yard measure in inches and quarter-inches glued to wall, the quarter- and half-yards indicated clearly, and yard-sticks cut from lathes and marked on one side in feet only and on the other side in feet and inches only; some yard tape-measures like the one glued to the wall, some strips of thin cardboard marked in inches and half-inches measuring from 2 to 12 inches—some with an odd half-inch, *e.g.*, $1\frac{1}{2}$, 3, $2\frac{1}{2}$, 5, $3\frac{1}{2}$, 7 inches, etc., some milk-bottles (3 of each) borrowed from a local dairy in quarts, pints, half-pints, some metal measures in all sizes, one of which can have a marked scale up the side; a small galvanized bucket; a large enamel bowl with handles, with the gallon-levels painted on it; a square of linoleum; some 2-inch bamboo beads and half-inch smaller beads and long and short laces; a miscellaneous assortment of coins for till and purchaser; a collection of articles to form nucleus of a shop; a box in which to keep the shop when not in use.

The Shop

There will be seven or eight children who will be engaged on activities other than number games. Of these, three or four can play with the shop, one as seller and three as purchasers. The younger children will bring increased emotional enthusiasm to the game if they are allowed some sort of wheeled article such as a small trolley or doll's pram with which to go shopping. It is often combined with playing "mothers and fathers" and the shopping is carried out as it is at home. Some one is sent to the shop and the change must be right. Bill-heads can be purchased cheaply from a local grocer who will be glad of the advertisement. For shopping-activities to be really beneficial the children must bring spontaneity to the activity. Most of the articles to stock the shop can be made in handwork lessons. Cakes, bread, sweets, etc., can be modelled and afterwards painted by mixing three parts of flour with two of salt. The dolls' furniture, candlesticks, carts, etc., made in handwork lessons from waste materials, are valuable contributions. Half the

fun to the shopkeeper will be the arranging and pricing of the articles to be sold. The permanent, elaborately arranged class-room shop deprives the child of this important activity. If the contents of the shop are hidden away in a box until the practical activity lesson arrives there will be greater possibility of creative fun in connexion with this arithmetic experimentation. A shop is of little educational value if it is not also a source of fun.

Measuring in Length

Short measurements of less than a foot can be made by threading bamboo and smaller beads which can be purchased in varying lengths. The short pieces of cardboard can be previously measured in inches and half-inches and cut and kept in an envelope. The direction-cards for this exercise will read, "Make a bead chain of $5\frac{1}{2}$ inches." These direction-cards will also be kept in the same envelopes. The laces and beads will lie in a wooden box marked in some way to show that it belongs to the envelope.

Longer measurements can be cut by the children from the narrow rolls guillotined from wall-paper. The directions can be simply stated thus: "Cut off $1\frac{1}{2}$ yards of ribbon." The non-readers will soon become acquainted with the repetition of the same command. They can make a repetitive pattern in coloured pencil on the plain side in units of an inch or two inches. This can be suggested to them verbally when they bring their completed exercises for inspection if there is still time.

Another set of exercises can deal with human measurements, *e.g.*, "Measure a boy's (girl's) head," "Measure a boy's arm," "Measure a boy's foot," "Measure a boy from head to foot," "Measure Teacher from head to foot." The answers will be written down, and pencils and slips of paper can be put in a box with the tape-measures and direction-cards.

If the direction-cards for each set of exercises are prepared in this way, the teacher's work of supervision is reduced to a minimum.

Measuring Capacity

Water and silver sand can be used for measuring capacity. If water is used it is advisable to cover a corner of the classroom with linoleum, in which case the spilled water is easily dried off. Wooden blocks take much longer to dry and are less pleasant to wipe. The child who has been measuring with water will be pleased to do this if a swab is available. The large bowl will be filled to the extent of two gallons. The small bucket with marks painted up the sides, indicating pint-levels, will be handy both for emptying the water and as a receptacle for measured quantities.

The direction-cards for these exercises can be graded in difficulty.

"Put 2 half-pints in a pint bottle."

"Put 2 pints in a quart bottle."

"Put 5 pints in the bucket."

"Put 2 quarts and 1 pint in the bucket."

"Put 10 half-pints in the bucket."

At first the children will need to be shown to which measures the direction-cards refer.

Another set of exercises can refer to quantities remaining after some has been removed.

"Take 8 pints out of the bowl and put them in the bucket. How much is left?"

"Put the 8 pints back. How much water is in the bowl now?"

"Take 4 quarts out of the bowl and put them in the bucket. How much is left in the bowl?"

"Put the 4 quarts back. How much is in the bowl now?"

"Put 16 half-pints in the bucket. How much is left in the bowl?"

"Put the 16 half-pints back. How much is in the bowl now?"

These activities will give an idea of the various measures in relation to one another and prepare the way for the more formal learning of the tables and their use. They can be put in the form of the four rules concretely exemplified.

E.g., "Put 2 pints and 3 pints in the bucket. How many pints are there?" (Addition.)

"Fill a quart pot twice and put it in the bucket. How many pints are there?" (Multiplying.)

"Put 6 pints in the bucket. How many quart bottles will it fill?" (Sharing.)

The dull children will be unable to go so far in the prepared direction-cards as those who are of average intelligence. Directions such as the last set will be too difficult for children with I.Q. below 85 until they reach the Senior School. This kind of activity develops arithmetic sense in the retarded child to a high degree and will help in the more formal work because it will have more reality value.

Weighing

There are many things in the class-room which can be weighed, such as exercise- and text-books, boxes, copper studs, and the silver sand. Exercises introducing the children to the relative value of the weights can read thus:

(i) "Weigh 1 lb. of sand." "Weigh $\frac{1}{2}$ lb. of sand." "Weigh $1\frac{1}{2}$ lb. of sand." "Weigh 2 lb. of sand."

(ii) "Weigh 1 oz. of sand in a box." "Weigh 7 more boxes like this." "Put the 8 boxes on the scale. Find a weight like them."

"Put the 8 boxes and the weight on one side. Find a weight like them."

| | |
|-------|---|
| (iii) | <div style="display: inline-block; vertical-align: middle;"> <p>"Weigh 1 book"</p> <p>"Weigh 2 books"</p> <p>"Weigh 3 books"</p> <p>"Weigh 6 books"</p> <p>"Weigh 4 books"</p> <p>"Weigh 8 books"</p> </div> <div style="display: inline-block; vertical-align: middle; font-size: 3em; margin: 0 10px;">}</div> <div style="display: inline-block; vertical-align: middle;"> <p>books of one set.</p> </div> |
|-------|---|

For older or more intelligent children.

(iv) "How many thin books weigh as much as 1 thick book (thick books to weigh 4 oz. or thereabouts)?"

"How many copper studs weigh as much as 1 thick book?"

"How many thin books weigh as much as the copper studs?"

"How many ounces does the thick book weigh?"

"How many ounces do the copper studs weigh?"

"How many ounces do the thin books weigh?"

"How many ounces do they all weigh together?"

Activities with standard measures and weights are not profitable except at a level of simple comparison until a mental age of 7 years has been reached. Thus the children with I.Q.'s lower than 85 should be introduced to these activities in their second year in the Junior School. Little profit will result if they are expected to accomplish the printed problems stated above earlier.

Number Games (Junior School)

The rules of most number games can be adjusted to meet the requirements of the process which is to be practised.

Games Practising Number Concepts

(i) *Patience. Material for four players.* Four sets of 10 cards in an attractive colour. One set will show the number patterns 1-10 in bright adhesive spots, another set will show the numbers 1-10 printed boldly, the next 2 sets will show groups of objects or creatures, *e.g.*, animals or toys or fruits, also allocated 1-10 in each set. When these are all set out in order there will be four rows, one showing the figures one to ten, the other three showing the concrete exemplification of the numbers 1-10.

Rules. The cards are shuffled and dealt to 4 players. The child possessing the dot pattern for 'one' begins by placing her card, the child holding the dot pattern 'two' follows, placing her card on the left of the first card. This continues, each placing when they have the succeeding card in the series, until the dot number pattern-line is completed. Then the row of figures is completed in similar fashion, followed by the next row of rabbits (suppose) and completed by the

fourth row of toys. The child who puts all her cards out first wins. The child possessing the last 10 is bound to lose in this way, but it is a good method by which to introduce the game. If both down- and across-matching are allowed this handicapping of one player is avoided.

(ii) *Making patterns with bricks and mosaic pieces*

(iii) *Class Singing*

"The animals went in two by two"

"Ten Little Nigger Boys"

"Ten Green Bottles"

"One, two, buckle my shoe"

"One-two-three-four-five,
once I caught a fish alive"

These can be accompanied by concrete representation of the articles, or persons, referred to.

(iv) *'Snap'* (for two players). The snap-cards consist of 2 sets of cards bearing bold representations of number patterns in varied arrangements. A variation on this would be to have sets of digits and sets of patterns to match.

(v) *Flick Disc*. A long flat smooth tray about 4 ft. \times 1 ft. 3 in. with raised edges. The number patterns on paper about the size of a playing-card pasted in three rows at one end of the board. Two or three metal discs about the size of a halfpenny but heavier. A ring is marked at the other end of the board as starting-point.

The disc is propelled forward by a flick of the finger; and the score is the number pattern on which it comes to rest.

(vi) *Dice Games* are chiefly of value as a counting-device and as practice in number-concepts up to 6.

(vii) *Dominoes* are useful for both number concepts and number compositions. Sets can be made where the criterion for matching can be the composition of 7, 8, or 9.

Thus:

Number Composition, etc. (Junior and Senior School)

(i) *Bull Board.* For two or more children. A sheet of 3-ply wood 36 inches square having a ledge of wood about $1\frac{1}{2}$ inches wide along one side, which gives the board a slight slope when it is placed on the ground. The surface is painted into 16 nine-inch squares. These are labelled with figures to enable practice in any process desired, *e.g.*, numbers up to 10 or beyond 10; any of the four processes, exercises such as $36 \div 9$, or 2×12 , $7 - 3$, $9 + 7$. Three or four round flat bags of about 2 to 3 inches in diameter filled with silver sand.

The children take it in turns to throw the bags on to the board from an appropriate distance. A scorer can enter the score resulting from each throw on a separate slip of paper, handing it to the competitor at the end of each round. After an agreed number of rounds the scores can be totalled and the competitors placed in order.

(ii) *Spinning Wheels.* Some 3-ply wood shaped into a regular hexagon and with a spindle rod through the centre. Each section to be marked as desired, *e.g.*, "Spend 1s. 6d." "Earn 3s. 0d." "Lose 1s. 2d." "Birthday present 2s. 6d." "Give away 6d." "Put 7d. in the bank." The top, when spun, will come to rest on one of its hexagonal sides. This will be the score. Competitors can enter their own scores in this game.

(iii) *Marble Arch.* A long flat tray about 4 ft. \times 1 ft. 3 in. with raised edges. A few inches from one end a line of arches in 3-ply wood labelled above each one as desired. A round stick about 18 inches long and 5 or 6 marbles. A small dent in the centre of the board about 3 inches from the end.

The marbles are struck (as in billiards) in turn, and the score depends on the arches they pass beneath.

(iv) *Shooting at Targets.* It is possible to buy pistols which propel by means of a released spring. The bullets are sticks ending in rubber suction-caps which stick to any firm surface. They are very light, and even if a small boy receives one of

these in the eye at a distance of a yard or so, he feels a smart sting but no bruise results. These are recommended in place of darts, which have to be used with caution. The target, with appropriate scores, can be painted on the wall.

(v) *Spinning Tops*. These can be made quite simply out of two or three ring counters placed together with a piece of stick fastened through the hole. The counters can be held in place by means of thin rubber bands twisted round the stick above and below the counters. Small flat trays about 8 inches square with edges raised about 1 inch will make suitable spinning-grounds. The bottom of the tray can be lined with paper marked out in inch squares, and each square marked with its score. Where the toe of the top comes to rest is the score.

(vi) *Fish-pond*. The fish can be made of stiff paper with wire rings through their noses. Magnets can be bought at a 1d. or 2d. The scores on the fishes' bodies can give practice as desired.

(vii) *Donkey*. The parlour game. A donkey drawn on a large sheet of black or brown paper with his body mapped out into regions having high value near the tail. This can be used as a team game.

(viii) *Throwing a damp sponge* against the blackboard from the back of the room. The blackboard can be marked out in irregular shapes each bearing a value. This too can be used as a team game.

(ix) *Bagatelle*. Bagatelle sets can be purchased for 6d.

(x) *Lotto* can be used to practise number recognition with larger figures in the Senior School.

Most of these games can be adapted to suit any purpose, and the set, when complete, can give adequate practice in all elementary computation in the four rules in ordinary notation and money, in a graded sequence.

Children in Special Classes are for the most part immature and are apt to quarrel over number games. An independent scorer, who changes place with one of the players after the completion of the game, will minimize this difficulty. The

scorer should only record—not reckon—the total score. This should be done by the players.

Most of these games can be used with effect in Senior Special Classes to give the elementary practice which these children need.

JUNIOR SCHOOL

SUGGESTED ARITHMETIC EQUIPMENT FOR A SPECIAL CLASS

| Quantity | Description | Published by |
|----------------|--|--------------------|
| 6 copies | "B & A" <i>Junior Arithmetic</i> (Book O) | Cassell |
| 3 " | Larcombe's <i>New Arithmetic for Junior Schools</i> (Book I) | Macmillan |
| 3 " | Modern "Guide" <i>Arithmetic</i> (Book I) | Davis and Moughton |
| 3 " | Modern "Guide" <i>Arithmetic</i> (Book IV) | Davis and Moughton |
| 3 " | Ballard's <i>London Arithmetic</i> (Book I) First Series | U.L.P. |
| 1 box | "A.L." <i>Number Wheels for Individual Work</i> (Box 1A) | Arnold |
| 1 " | "A.L." <i>Number Wheels for Individual Work</i> (Box 2) | Arnold |
| 1½ doz. | <i>Foundations of Arithmetic</i> (Book I) | Nelson |
| 1 doz. | <i>Foundations of Arithmetic</i> (Book II) | Nelson |
| 2 of each | <i>Welbent Practice Arithmetic</i> (Books I, II, III, IV, V, VII, XIII, XIV) | Arnold |
| 6 copies | "B & A" <i>Junior Arithmetic</i> (Book I) | Cassell |
| 1 copy | Wisdom's <i>Arithmetical Dictation</i> (Book I). With answers | U.L.P. |
| 5 doz. of each | "A.L." <i>Digit Tablets</i> (0, 1, 2, 3, 4, 5, 6, 7, 8, 9) | Arnold |
| 1 of each | Monteith's <i>Welbent Scheme of Individual Work in Number</i> | |
| | Stage I. Steps 1, 2, 3, 4 | |
| | Stage II. " 1, 2, 3, 4 | |
| | Stage III. " 9 | |
| 1 of each | Stage IV. " 1, 2, 3, 8, 10 | Arnold |
| | Stage V. " 4, 8, 9, 12 | |
| | Larcombe's <i>Arithmetic Cards for the Very Young</i> | |
| 1 pkt. of each | Grade II, III. 8th-year Practice 8th-year Revision | Evans |

| Quantity | Description | Published by |
|----------------------------|--|------------------|
| 1 box of each | <i>Oval Pictorial Arithmetic Test for Infants (Set I, Set II)</i> | Charles |
| 1 box . | <i>Uphall Pictorial Arithmetic Test Cards (Set A)</i> | |
| 500 | Loose "Little Giant" Cube Beads | Philip and Tacey |
| 50 | Beadless Bars for these | Philip and Tacey |
| 500 | $\frac{1}{2}$ -inch Bamboo Reeds | Arnold |
| 1 doz. | Fine 40-inch laces | Arnold |
| 100 | 1-inch Rainbow Round Wooden Beads in 10 colours, 10 of each colour | Philip and Tacey |
| 500 | Cowrie Shells | Arnold |
| 4 boxes | Gummed Spots, 1 R, 1 B, 1 Y, 1 G | Arnold |
| 2 | Riverside Sorting Trays, No. 10 | Philip and Tacey |
| 2 stone | Silver Sand | |
| 1 | Large Ten-peg Board | Charles |
| 1 gross | Copper Studs | Arnold |
| 100 | Envelopes 10 x 8 inches | Arnold |
| 3 doz. | "A.L." Scholar's Tidy Boxes, No. 8 | Arnold |
| 3 doz. | Rulers (in quarter-inches) | Arnold |
| $\frac{1}{2}$ doz. | Tape Measures | Arnold |
| 1000 | Ring Counters, No 13 ($\frac{1}{4}$ -inch hole) | Arnold |
| 1000 | Ordinary Counters | Arnold |
| 1000 | 1-inch Coloured Sticks | Arnold |
| | <i>Loose Coins</i> | |
| 100 | Sixpences | Arnold |
| 200 | Farthings | Arnold |
| 200 | Halfpennies | Arnold |
| 600 | Pennies | Arnold |
| 100 | Shillings | Arnold |
| 2 doz. | Florins | Arnold |
| 2 doz. | Half-crowns | Arnold |
| 1 doz. | Clock Faces for class teaching | Arnold |
| 2 $\frac{1}{2}$ doz. boxes | Radiant Coloured Crayons | Philip and Tacey |
| 500 | Chelsea Cube Beads, $\frac{1}{16}$ inch | Philip and Tacey |

SENIOR SCHOOL

SUGGESTED ARITHMETIC EQUIPMENT FOR A SPECIAL CLASS

| Quantity | Description | Published by |
|----------|---|--------------|
| 2 copies | "B & A" <i>Junior Arithmetic</i> (Pupils' Book O) | Cassell |
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APPENDIX

QUESTIONS SET ON BOOKS FOR THE SENIOR SPECIAL CLASS

READING-AGE 7+

" Jack-a-Dandy "

1. What was Jack's house like?
2. What clothes did Jack have?
3. What were his favourite cake and his favourite sweet?
4. Where was Jack able to buy his favourites?
5. How did he spoil his new coat?
6. What did he wish?
7. What had Jack to do just for a change?
8. What was the queer old man like?
9. Describe the oddest coat that Jack had ever seen.
10. What made Jack happy at last?

" Sly Tod "

1. What was Tod like?
2. Why did the men want to catch him?
3. What was the lake like?
4. How did Tod eat eggs?
5. What did he do to get Cluck away from her eggs?
6. What did the Farmer mean to do about Tod?
7. When Tod went after the goose, what did the farmyard cock do?
8. How did Tod escape from the Farmer?
9. How did Tod get away from the hounds?
10. Why was Tod always able to trick the huntsmen?

" The Golden Cobbler "

1. Where did the cobbler live?
2. What was his daughter like?
3. Say what you can about the beggar who tapped at the door.
4. What happened when the old man took back his mended shoes?

5. What warning was the cobbler given?
6. After his wife and daughter had brought silks and dresses, what did they still want?
7. Whom was the cobbler's daughter going to marry?
8. On the eve of the wedding what did the beggar man ask the cobbler?
9. What did the cobbler reply?
10. What happened to the cobbler and his wife and daughter?

" Magic Duck "

1. Who was little Ivan?
2. What did Ivan's father find on his way to town?
3. What did the duck lay each morning?
4. What did Ivan's father do to him when he found out that the duck had been eaten?
5. When Ivan reached Moscow how was he greeted?
6. What happened when Ivan became King?
7. Say what the younger girl was like in the story of "Little Red Cow."
8. What happened to Rushie Coat on Christmas Day?
9. What did the King and Queen do for the little Red Cow?
10. How was the little boy-fairy punished?

" Three Pennies "

1. Who was Moll?
2. Who was Meg?
3. Who was Anne?
4. Where did Anne's grandmother live?
5. What did little Anne wish for most in the world?
6. What did Anne find in her shoes on the morning after the feast?
7. What happened to Moll and Meg on the night after the feast?
8. Whom did Anne meet on the way after visiting her grandmother?
9. Name the second person to whom Anne gave a penny?
10. How was the old dame dressed?

" Neddy Know-nothing "

1. Look at the picture on p. 10. What is Ben Jones saying?
2. Look at the picture on p. 23. For whom is Neddy working now?

3. Look at the picture on p. 36. What had happened just before this?
4. Look at the picture on p. 41. Why is Neddy dancing?
5. Look at the picture on p. 51. What is Ned just going to eat?
6. Look at the picture on p. 54. Why is Ned looking at Miss Jean?

"The Wizard's Chair"

1. What did Prince Robin grow up to be?
2. Say what you can about the King's brother.
3. When did Prince Robin go?
4. What did the old man want him to do?
5. What happened to the old man?
6. Who lived in the big gloomy castle?
7. What was the inside of the castle like?
8. What was the matter with the Wizard's chair?
9. What happened when Robin sat in the chair?
10. How did Robin return to his home?

"The Golden Mill"

1. Which word best shows what Jean was like?
2. Which word best shows what John was like?
3. What shape did the queen of the fairies take when she called to beg?
4. What is the tiny boy saying in the picture on p. 29?
5. What has Jean round her neck in the picture on p. 55?
6. What were John's three wishes?

READING-AGE 8+

"The Secret Name"

1. What did the mother sing as she chopped wood?
2. What did she change her song to when the King called?
3. What did the King do?
4. How did Mary find out the name of the black imp?

"The Squirrel who was a Wonderful Jumper"

1. Who was Mooshy?
2. Who was in charge of the bird show, and what was the price of a seat?

3. Name all the birds that performed at the bird show.
4. What did Mooshy arrange for Copper Nopper to do?
5. How did Mooshy propose to end the shouting and wrangling about the jumping?
6. What happened at the great jumping match?

“ The Queen whose Nose was Three Yards Long ”

1. Look at the picture on p. 3. Who is lying in bed? What is he holding? What is lying on the bed? Tell why each of these things is magical.
2. What is happening in the picture on p. 9?
3. What is the little man saying in the picture on p. 13?
4. Why is the Queen's nose growing in the picture on p. 17?
5. What did she have to give the youngest son before he would make her nose short again?

“ The Golden Hairpin ”

1. Why did the idol's face fall away?
2. Why did his aunt turn him away?
3. Was he guilty?
4. Put these words in a sentence: innocent, reproach, pardon.

“ The Donkey who lost his Tail ”

1. Say what you can about the picture on p. 5.
2. What has happened to cause the scene in the picture on p. 7?
3. The picture on p. 11 shows a number of animals. What is happening?
4. What does the picture on p. 13 show?
5. How did the goose describe the market?
6. What happened to make the goose friendly in the farmyard again?
7. What command did the lion make to the other animals?

“ The Little Dancer ”

1. Who were Stella and Elsa?
2. What happened to Stella?
3. What happened to their mother?
4. Where did Vera live?
5. What has happened in the picture on p. 19.
6. What did the Goddess say to Vera?

"Grunling the Dwarf"

1. What did King Burble promise to do while he was visiting his cousin?
2. When the King was walking in his sleep, what happened?
3. What did Grunling beg of the King?
4. What names did the dwarf want?
5. What happened to the King's sons after they had been christened?
6. What was Theodor like when he was taken to his father's palace?
7. How was Mamillus found?

"The Man who sold his Heart"

1. What was the Glass Man like?
2. Write out the verse which had to be recited to the Glass Man.
3. What were Peter's two wishes?
4. Who was Dutch Michael?
5. How did the Glass Man appear to Peter again?
6. How did Peter get his heart back again?

"The Poppy, the Lily, and the Rose"

1. Describe the widow's two daughters.
2. What is the picture on p. 5 about?
3. What did Lilova dream?
4. What was the message of the Poppy, the Lily, and the Rose?
5. What did Guruma do to her sister?
6. What did the old man of the forest do?

"King of Black Mountain"

1. What happened to the King four days before the wedding?
2. When the King returned, what did he say to the Princess?
3. What proclamation was put up in all public places?
4. What work did the artists do for the King?
5. What happened when the Statue was uncovered?

READING-AGE 9+

"Beacon Study Readers" (Book I)

P. 9. Answer all the questions on p. 9, in a complete sentence like this:

"My name is Tom Jones. I am 12 years old."

P. 13. Finish the sentences like this:

"A baby cries. A bear growls."

"Beacon Study Readers" (Book I)

Pp. 14-23. Read these pages. Then write one sentence answering each of these questions:

1. How many times a day should a dog have meat?
2. How old should a puppy be before he has meat?
3. What should a dog have to drink?
4. What is good medicine for a dog?
5. What should you put on a dog to prevent him from biting?
6. Where should a dog sleep in summer?
7. What should you do with a dog after you have bathed him?

"Beacon Study Readers" (Book I)

Pp. 24 and 25. Guess the answers to the riddles—then *tell* them to your teacher.

"Beacon Study Readers" (Book I)

P. 31. Write out the sentences, putting in the right words.

"Beacon Study Readers" (Book I)

Pp. 36-39. Draw and colour a green woodpecker, then write about it underneath like this: "It is a gaily coloured bird. It is red, yellow, black, and white. . . ."

How does it help the trees?

How does it catch insects?

"Beacon Study Readers" (Book I)

Pp. 44-45. When you are ready, tell your teacher the answers.

"Beacon Study Readers" (Book I)

P. 46. Draw the picture and colour it. Print the words "hydrant," "hose," "firemen," "flames" underneath, and draw arrows to show what things in the picture the words stand for.

"Beacon Study Readers" (Book I)

P. 51. Read about the mill, then show your teacher the paddles of the wheel and explain how they work the mill.

"Beacon Study Readers" (Book I)

Pp. 58 and 59. Answer every third question. How many questions have you answered? It should be seven.

"Beacon Study Readers" (Book I)

Pp. 60 and 61. Read about the wind. What is the wind? When does the air become so thick that we cannot see through it?

"Beacon Study Readers" (Book I)

Pp. 62 and 63. Read about ships and windmills. Draw a sailing ship and a windmill. Put the windmill on the shore and the ship in the sea. Put some clouds in the sky. Underneath write down: "The wind pushes the sails of the ship and turns the sails of the windmill."

"Beacon Study Readers" (Book I)

Read pp. 68 and 69. Write down four harmful things the wind does.

"Beacon Study Readers" (Book I)

P. 104. Guess the answers and tell them to your teacher when you are ready.

"Beacon Study Readers" (Book I)

Pp. 116 and 117. Read about the polar bear. Measure eight feet up the class-room wall. Now you see how tall some bears are. What do they eat? Where do they live?

"Beacon Study Readers" (Book I)

Pp. 118 and 119. Find Alaska on p. 14 of your atlas. What does this bear eat? How does he catch fish? Measure nine feet up the class-room wall.

"Beacon Study Readers" (Book I)

Pp. 120 and 121. When is the grizzly bear most fierce? What does he eat?

"Beacon Study Readers" (Book I)

Pp. 122-126. How big is a bear cub at birth? How long does he take to grow up? How does his mother teach him to obey?

READING-AGE 9+

"Beacon Study Readers" (Book II)

P. 11. Write this exercise.

"Beacon Study Readers" (Book II)

Pp. 12, 13, and 14. Get the answers ready to tell your teacher.

"Beacon Study Readers" (Book II)

P. 15. Read about the bulldog. Write out the ten questions on pp. 16 and 17 and put "Yes" or "No" after each one.

"Beacon Study Readers" (Book II)

Pp. 20 and 22. Read about the collie dog. Answer the questions on p. 22.

"Beacon Study Readers" (Book II)

Pp. 26 and 27. Read about the Eskimo dog.

"Beacon Study Readers" (Book II)

Write the sentences on p. 28.

"Beacon Study Readers" (Book II)

Pp. 30 and 31. Read about the greyhound. Be ready to read to your teacher the sentences asked for on p. 31.

"Beacon Study Readers" (Book II)

Pp. 32-34. Read about the St Bernard dog. Answer questions 4, 6, and 9.

"Beacon Study Readers" (Book II)

Pp. 37-38. Answer every fourth question.

"Beacon Study Readers" (Book II)

Pp. 42 and 44. Read about the luminous fish. Write another word for "luminous." Write another word for "illuminated." Answer the questions on p. 44. Write this: "Glow-worms, fire-flies, and some clocks are luminous."

"Beacon Study Readers" (Book II)

Pp. 45, 47, and 50. What is strange about the fish on p. 45? What is strange about the fish on p. 47? What is strange about the fish on p. 50?

"Beacon Study Readers" (Book II)

P. 52. Write out the completed sentences.

"Beacon Study Readers" (Book II)

P. 55. Learn the months of the year. Answer all the questions under the list of the months and at the top of the next page.

"Beacon Study Readers" (Book II)

Answer every fifth question on p. 58.

"Beacon Study Readers" (Book II)

Pp. 82 and 83. Answer all the questions with even numbers.

"Beacon Study Readers" (Book II)

Pp. 106-110. Read about the toad. How much money can a toad save a farmer in one year? Why? What four rules will save toads from being killed?

"Beacon Study Readers" (Book II)

Pp. 113-115. Read about the Eskimo. Answer questions 1, 3, 5, 6, 7. In your atlas show where the Eskimos live.

"Beacon Study Readers" (Book II)

Pp. 118-121. Read about Florence Nightingale. Why was she called "The Lady of the Lamp"? What happened to wounded soldiers before she began her work?

READING-AGE 9·5+

"Beacon Study Readers" (Book III)

P. 10. Finish the sentences which have odd numbers.

"Beacon Study Readers" (Book III)

Pp. 12-16. Read about homes long ago. Answer questions 3, 5, 6, and the last one on p. 17.

"Beacon Study Readers" (Book III)

P. 18. Put the right parts of the sentences together.

"Beacon Study Readers" (Book III)

Pp. 36-42. What would you use to make a floating water clock? Draw an hour-glass. What did King Alfred use to tell the time?

"Beacon Study Readers" (Book III)

P. 51. Complete these sentences.

"Beacon Study Readers" (Book III)

Pp. 64-67. Read about circus elephants and then answer questions 3 and 4.

"Beacon Study Readers" (Book III)

Pp. 68-73. Read about "Other uses of Elephants" and then finish sentences 2, 4, 6, 10, 11.

"Beacon Study Readers" (Book III)

Pp. 74-76. Read about the size and age of elephants. Which elephants live longer, tame or wild ones? Which is the more healthy life for an elephant—in captivity, or in the wild jungle? How long must an elephant live before he is fully grown?

"Beacon Study Readers" (Book III)

Pp. 79-83. Find two countries where "elephant" is marked on p. 7 in your atlases. Then turn to p. 13 and look at the picture of an elephant at work. What word is printed in Africa which shows that elephants must be there?

How many elephants are in a large herd? How do men frighten elephants when they want to capture them?

"Beacon Study Readers" (Book III)

Pp. 85-87. Read about elephants in captivity. Find the words asked for on p. 87. Put them in sentences like this: "Elephants in captivity are . . ." "When an elephant dislikes his keeper he may . . ." "A dangerous elephant may . . . his keeper." "Tame elephants become rogues when they have . . ."

"Beacon Study Readers" (Book III)

P. 93. Read "The Habits of Elephants."

"Beacon Study Readers" (Book III)

Answer question 3 and the last two on p. 97.

"Beacon Study Readers" (Book III)

P. 103. Write out every odd-number sentence and finish it off.

E.g., 1. Some one who fills teeth is called a dentist.

3. Some one who drives a tram is called a driver.

"Beacon Study Readers" (Book III)

Pp. 122-128. Read about the little brown bat. Write out sentences 1, 2, 7, 10, 12, and put "Yes" or "No" in brackets at the end. Then complete the first and second sentences on p. 130.

"Beacon Study Readers" (Book III)

Pp. 143 and 144. When you are prepared get your teacher to ask you the questions while you read her the right answer.

"Beacon Study Readers" (Book III)

P. 154. Read about "Our enemy the rat," then answer questions 1, 3, 6.

"Beacon Study Readers" (Book III)

P. 157. "How do rats destroy property?" Read this. Answer questions 2, 3, 4, 6, on p. 161.

"Beacon Study Readers" (Book III)

Pp. 162-164. Read about getting rid of rats. Then complete the sentences 2, 6, 7, on p. 165.

"Beacon Study Readers" (Book III)

Pp. 166-169. Read about the animals which kill rats. What kinds of dogs kill rats best? How do barn owls help the farmer? How much money does each of them save him?

"Beacon Study Readers" (Book III)

P. 171. Do what is asked on this page.

READING-AGE 9-11+

"Golden Journeys"

Read pp. 12-24. Answer questions 1 and 2. How do you know the picture at the bottom of p. 24 is Egypt? Find Egypt in your atlas.

"Golden Journeys"

Pp. 25-31. Read the story of the Gay Gowhowk. Now look at the two pictures on pp. 25 and 27. Which happened first in the story? Say what is happening in each of them. Why did the lady drink the strange medicine? What happened at St Mary's Church?

"Golden Journeys"

Read pp. 50-58. Why did the "Swallow" make a forced landing? Find Croydon on p. 21 of your atlases. Write the words which Quicksilver used to describe what the ground looked like when he was going up and coming down in an aeroplane.

"Golden Journeys"

P. 98 onward. Describe how Jack found:

- (1) His axe.
- (2) His shovel.
- (3) His water.

"Golden Journeys"

Read pp. 152-156. What does Epiphany mean? For whom is La Befana searching? How does she find happiness at Epiphany?

READING-AGE 9-11+

"Friends Across the Sea" (Part 1)

Read "Uncle Tom from Canada." Answer these questions.

- (1) How would you get to Canada? Show your teacher the way in your atlas when you have your book marked.
- (2) Have there always been white people in Canada? Who lived there first?
- (3) Are there any mines in Canada? What is a mine?

- (4) Describe all the work which goes on in the great forests.
- (5) What would you see floating on the rivers when the ice melts in spring?

"Friends Across the Sea" (Part 1)

Read "On Uncle Tom's Farm."

- (1) Fill in the missing words. "Uncle Tom's farm is really one . . . field of . . ." Such a farm is called a ranch.
- (2) Where do you find such big farms as this?
- (3) Does Uncle Tom's wife wait for the milkman to call? How does she get milk, butter, and eggs?
- (4) How do the bigger boys and girls go to school?

"Friends Across the Sea" (Part 1)

Read "Winter time in Canada."

- (1) How would you play in Canada in the winter?
- (2) What work goes on in the winter?
- (3) What soon happens to snow in England? What is it like in Canada?

"Friends Across the Sea" (Part 1)

Read "Cousin Jim from Australia."

- (1) Why could we call Cousin Jim's land "topsy-turvy land"?
- (2) Find Australia and England on a globe.
- (3) Why is a large part of Australia desert, do you think?
- (4) Is it all desert? How do you know?

"Friends Across the Sea" (Part 1)

Read "What Cousin Jim sends to us."

- (1) How does a piece of grass in Australia become the butter on your bread at tea? Tell me all that happens to it.
- (2) What else reaches us from Australia?
- (3) Find London, Liverpool, Hull, and Glasgow on your maps of England and Scotland.

"Friends Across the Sea" (Part 1)

Read "In a Zulu Village."

- (1) In which part of Africa do the Zulus live?
- (2) What is a Zulu village called?
- (3) What do we use maize for?
- (4) What forms the bed of the Zulu?

"Friends Across the Sea" (Part 1)

Read "Jolly Sambo."

Look at the picture on p. 21. These people are Negroes. They belong to Africa. Why do we find large numbers of them in America? Who took them there? Are they slaves now? Do you know what the father is carrying on his head?

"Friends Across the Sea" (Part 1)

Look at the back cover.

Answer questions 3, 4, 7, 8, and 15.

"Friends Across the Sea" (Part 1)

Read "Jan and Tilda from Holland."

Look at the picture of Jan and Tilda. Tell me something about their shoes, the things they are carrying, the windmill.

Then read "Holland in Spring-time" on the next page.

Make a list of the flowers that grow from bulbs in Holland. Draw the picture at the bottom of the page.

"Friends Across the Sea" (Part 1)

P. 13. Trace the picture on p. 14 in your books. Find out from your book on pp. 13, 15, and 16:

- (1) Why Nanook's cart has no wheels. What is it called?
- (2) Why she is dressed in thick furs.
- (3) How Nanook's father spends his winter.
- (4) What the animal at the top of p. 13 is called. Why has he got that sun behind him?
- (5) "Nanook's father is called an Eski_____." Finish the word and write the sentence.
- (6) Whether trees grow in that land. Where do they find wood?

"Friends Across the Sea" (Part 1)

Read "The Boys and Girls of Africa."

- (1) Will their mothers have to spend a lot buying clothes for them? Why not?
- (2) What does "Africa is a continent" mean?
- (3) What covers the rainy part of Africa? What are the places called where no rain falls?
- (4) What animal is called "The Ship of the Desert"?

"Friends Across the Sea" (Part 2)

Read "Pat and Kathleen from Ireland." Why is Ireland spoken of as the "Emerald Isle"?

Which two animals do you find mostly on the farms? Why? Because of these what foods do the Irish sell to other countries?

"Friends Across the Sea" (Part 2)

Read "Tablecloths and Ships."

Linen is made from the threads in the stalks of the flax plant. Why is the linen spread in the sun? Finish this sentence: "Ireland makes the best . . . in the . . ." Where are ships built? In what part of Ireland is this town? Why do people go to Ireland for their holiday?

"Friends Across the Sea" (Part 2)

Pp. 6-9. Draw the map on p. 8. Mark in the towns. Tell me something about each of these places:

- (1) Cadiz.
- (2) Seville.
- (3) Strait of Gibraltar.
- (4) Almcira.
- (5) Valencia.
- (6) Barcelona.

Are many oranges growing in Spain at this moment? In May, 1937? Why not?

"Friends Across the Sea" (Part 2)

Pp. 10-13. Draw the map on p. 12.

Tell me something about:

- (1) The Ganges and the Indus.
- (2) Mount Everest.
- (3) Ceylon.
- (4) The jungle.
- (5) The Great Plain.

"Friends Across the Sea" (Part 2)

P. 13. Read "The Land of Cherry Blossom."

If you were going in a boat from Calcutta to Japan, tell the places you would pass.

Why is it called "The Land of Cherry Blossom"?

Why are the houses built of light wood?

What is a "typhoon"?

What kind of things are made in Japanese factories?

"Friends Across the Sea" (Part 2)

Pp. 16-17. What kind of umbrellas do the Japanese use?

If you were a child of Japan, on what day would you receive your birthday present?

What do they have instead of beds and fireplaces?

"Friends Across the Sea" (Part 2)

Pp. 18-21. Look at the picture on p. 19. Why are there sheep in it?

What is a "dairy farmer"?

Write down four things which New Zealand sends to England.

How does a mother in the North Island wash her children's clothes?

"Friends Across the Sea" (Part 2)

P. 21. Draw the map on p. 21.

Find these countries on the map of the world in your Pictorial Atlas.

Where are the Cape of Good Hope, Cape Horn, and the Suez Canal? Point them out to your teacher.

"Friends Across the Sea" (Part 2)

Pp. 23-26. Read these pages about "Don Pedro from South America."

Answer questions 2, 4, 5, 6, 7, and 10 on p. 28.

READING-AGE 11+

"Read, Laugh, and Learn"

P. 27. Read about Tom Sawyer. Answer questions 1 and 2 on p. 31. Put these words into sentences to show what they mean: twelve, interest, attention, mischief.

"Read, Laugh, and Learn"

P. 31. Read the jokes. Notice how the conversations are set

out and what punctuation is used. Now set out this conversation in a similar way:

(1) Father at the Zoo with his small but troublesome son Jimmy.

(2) Little boys should be seen and not heard.

(3) Jimmy Then lift me Daddy so that the lions can see me.

“ Read, Laugh, and Learn ”

P. 33. Read this story. Pick out all the words on pp. 35, 36, and 37 which show how fast and furious was the ride.

“ Read, Laugh, and Learn ”

P. 41. Read the joke. Answer questions 3, 4, 5, and 6. Be sure you can spell the words in question 6.

“ Read, Laugh, and Learn ”

P. 44. Read the account of the tea-party, and then give three reasons why the hatter was called mad.

“ Read, Laugh, and Learn ”

P. 51. Read about Tom. Copy out the four lines on p. 53 which describe the little girl, then underneath copy those on p. 54 which describe Tom's reflection in the mirror. There are only three colours needed to paint these two pictures. What are they? What noises were there in the room? Pick out the noise words.

“ Read, Laugh, and Learn ”

P. 56. Answer question 12.

“ Read, Laugh, and Learn ”

P. 57. Read about Lorenzo the Painter. Answer questions 1 and 4. Put these words in sentences: calm, guess, language, whisper.

“ Read, Laugh, and Learn ”

P. 60. Read about the Bald Knight. Answer questions 1, 2, and 3.

“ Read, Laugh, and Learn ”

P. 68. Read the story. How did the goose oblige the hen? What two parts of the duck are specially suited to swimming and feeding in water?

“ Read, Laugh, and Learn ”

P. 71. Read about Gulliver, then answer questions 5 and 7 on p. 75.

“ Read, Laugh, and Learn ”

P. 91. Read the story and answer questions 4 and 5.

“ Read, Laugh, and Learn ”

P. 8. Read the story of the Irishman. Use these words in sentences: direction, surprised, wondered, bridge, through.

“ Read, Laugh, and Learn ”

P. 49. Read these jokes. Do you know a joke or riddle? If so, write it in your book.

FOR GIRLS—READING-AGE 11+

“ Setting Out ”

P. 7. Read the story of Frou-Frou. Then explain what is happening in the picture on p. 7, and the picture on p. 11. What kind of a dog was Frou-Frou? Find the country he was named after in your atlases on p. 14.

“ Setting Out ”

P. 13. Read about Florence Nightingale. How did she practise to become a nurse? To which country did she go to learn how to look after sick people? Who used to look after people who were ill in hospital when Florence was a girl? Write out the sentence which shows how Florence treated her dog's paw.

“ Setting Out ”

Pp. 24-27. Write a description of how the ‘tailor’ bird makes her nest. What kind of birds are called miners, carpenters, plasterers, and weavers? What is that queer stuff like a thatch on the tree on p. 27?

"Setting Out"

Pp. 28-31. Why was it a mistake to kill all the birds? What does "A dreadful massacre began" mean?

"Setting Out"

Pp. 32-34. Write out the paragraph which shows how happy they were. Write out the lines which show the sorrow they felt.

"Setting Out"

Pp. 48-52. Why did people think Vera and Elsie were foolish? How did Vera meet with her accident? Describe what is happening in the picture on p. 50.

"Setting Out"

Pp. 53-61. Find Yorkshire in your atlases. Why is the River Lidd remarkable? What are stalactites and what are stalagmites? How did they find Derrick?

"Setting Out"

Pp. 70-76. Why was Barbara Deane a good sport? Be ready to read aloud the lines on p. 74 beginning, "Another thrill was in store . . ." and ending "with delight," on p. 74.

"Setting Out"

Pp. 77-81. Regan and Goneril were not good daughters. Do you know some words, such as "deceitful," which describe their characters? How was King Lear foolish? Whom did you admire most, and why?

"Setting Out"

Pp. 82-85. How did Roy get Walker's finger-prints? Why would a burglar want to clean windows?

"Setting Out"

Pp. 117-122. Why was the baby prince given to Sir Ector? What was "Excalibur"? Merlin hid Arthur from all the strong nobles. What might have happened if he had not grown up in secrecy?

"Setting Out"

Pp. 123-129. Look at the picture on p. 127. Tell all about it.

"Setting Out"

Pp. 138-143. What did the man mean when he said, "Your enemies call you a Pretender. If so, you are the worst at your trade that I ever saw"? What do you think would have happened to Flora MacDonald if Betty Burke had been searched?

"Setting Out"

Pp. 153-159. Look at the picture on p. 151. Who is the gentleman standing listening? Why is Marie delighted when she learns who he is? What does "composed by" mean?

"Setting Out"

Pp. 160-165. Why was the League of Nations formed? Was the Great War a stupid or a fine thing? Give a reason for your answer.

FOR BOYS—READING-AGE 11+

"The Broad Highway"

P. 7. Read to p. 10.

Find Beachy Head, Cape Wrath, and the English Channel in your atlases. How many oil rooms are there in the Eddystone Lighthouse? What is the oil used for? Why is a lighthouse useless in fog? How are the ships warned, then?

"The Broad Highway"

P. 11. Read to p. 19.

To whom did the *Seamew* belong? Write out the lines which show how the storm came on. What almost happened to the *Firefly*? How did the boys save her? How did the stranger reward Terry, Chris, and Evan?

"The Broad Highway"

P. 20. Read to p. 23.

Look at the picture on p. 21. What is the man called who sits facing the rowers? What is the rower next to him called? Which of these would you prefer to be?

“ The Broad Highway ”

P. 24. Read to p. 32.

When Peter saw the white clay and the leopard-skin, what two things did it tell him? Write out the lines on p. 31 which are the most exciting—where Peter was just going to be killed. Read them to your teacher.

“ The Broad Highway ”

P. 33. Read to p. 35.

Write out three important rules which must be kept if you are to become a good football player.

“ The Broad Highway ”

P. 36. Read to p. 42.

What did the captain say to encourage Peter at half-time? Which team did Peter play for? Who scored the winning goal? Write out the sentence describing the winning shot.

“ The Broad Highway ”

P. 43. Read to p. 47.

Be ready to answer these questions when your teacher asks them: What is the amber light for? Show me how to signal “I am going to slow down.” Show me how to signal “I am going to turn to my right.” Who must be more careful, the man in a car or the man on foot?

“ The Broad Highway ”

P. 48. Read to p. 57.

What was the clue which Jeff found when he looked at the smart blue car? How much money had Mr Raleigh stolen? How much reward did Mr Travers and Jeff get for the capture of the car-bandit? Were they any better off?

“ The Broad Highway ”

P. 58. Read to p. 62.

Write out sentences which showed how (i) roads, (ii) expense, (iii) robbers made travelling difficult.

“ The Broad Highway ”

P. 63. Read to p. 66.

How does the pilot steer to the left or right? How does he

make the machine go up or down? Look at the picture on p. 65. How many people can travel in this aeroplane?

“ The Broad Highway ”

P. 67. Read to p. 74.

What did Ronald want for his birthday? How did he return to Gosserton after his night out? Were his parents worried at his absence? How do you know?

“ The Broad Highway ”

P. 75. Read to p. 83.

Look at the picture on p. 79. Who are the two boys? What was that truck once used for? Where does the rail lead to? Look at the picture on p. 82. How was Eric's life saved? Which of the three boys was most fitted to be a leader of other boys? Why?

“ The Broad Highway ”

P. 84. Read to p. 87.

Write out three rules about:

- (i) Paper bags and orange peel after a picnic.
- (ii) Broken glass.
- (iii) Tram tickets.

“ The Broad Highway ”

P. 104. Read to p. 111.

Who did you think was the thief at first?

Who was it really?

Why did Lazy Pete think it was Bill Derek?

“ The Broad Highway ”

P. 121. Read to p. 129.

What did Captain Green mean when he said, “Run up the Jolly Roger”?

In what way were most of the pirates captured?

Why is the mast to which Captain Jones is being tied broken off?

“ The Broad Highway ”

P. 146. Read to p. 153.

Do you know any tracking-signs? Draw them if you do and

label them with their meaning. Here are some. Do you know what they mean?



"The Broad Highway"

P. 172. Read to p. 176 and pp. 112-115.

Who helped the people of England more, Jack Cornwell or James Young Simpson? Which kind of a hero would you like to be—one who dies for his country or one who lives and works to help the people in it.

READING-AGE 9-11+

"Famous Fables"

Pp. 7-9. How would you rather live, like the thin or the fat cat? Write the sentence which is the most exciting part of the story. What is wrong here: The fat cat stoped. He tosed the mouth out of his site. She had forgotten the taste. She was siting on the dorestep?

"Famous Fables"

Pp. 10-13. How did the hare trick the lion and kill him? Begin like this—"The hare tricked the lion by making him believe that . . ." What put this idea into his head? Who was the cleverer, the hare or the lion? How do you know?

"Famous Fables"

Pp. 13-15. Write a story like this, but instead of a deer have a rat, instead of a crow a mouse, and instead of a jackal a cat who wanted to eat the rat. Instead of a farmer have a housewife. Instead of a field of young corn have some cheese. Instead of a wood have the space under the pantry floor.

"Famous Fables"

Pp. 22-24. Why did the crocodile have a "long toothy grin"? Put these words in sentences: twinkling, wretch, lashing.

"Famous Fables"

Pp. 29-34. Can you think of another fable where an animal who was big and strong and stupid was overcome by one who

was weak but clever? Copy out sentences which show how the alligator showed his anger and the jackal his joy.

"Famous Fables"

Pp. 34-37. Copy out a sentence from the story which shows how angry the tiger was. What does "Men are vile" mean? Look it up in the dictionary. Why did these animals say this?

"Famous Fables"

Pp. 64-67. How did the stork get his revenge. What is a muzzle? What is a snarl? Find the sentence with the words 'graceful' and 'straight' in it. Copy it out.

"Famous Fables"

Pp. 67-69. What do these words mean: boasted, challenge, astonished? Put each in a sentence which shows you know its meaning. Try to draw a tortoise.

"Famous Fables"

Pp. 77-78. "One good turn deserves another." How does this story show this?

"Famous Fables"

Pp. 102-103. Read the story of the sausage. If you had three wishes, what would they be?

READING-AGE 9-11+

"Stories from Everywhere"

P. 60. The Great Wall of China is one of the Seven Wonders of the World. Why and when was it built? Find it on the map of China.

"Stories from Everywhere"

P. 163. Zarifa saved the town by a ruse or trick. She turned a fat calf to graze outside the city newly fed with corn. Why? Find Algeria in your atlas.

" Stories from Everywhere "

Pp. 1-5. In what way were the old man and Rona like each other? Find all the words on p. 1 which tell you how bad-tempered the old man was. Do you know what really is the cause of the markings on the moon?

" Stories from Everywhere "

Pp. 7-14. Why was Anna Maria different from other children? How do you know that she couldn't help being different? Write a line which rhymes with this one:

"Mother, pass the bread and jam."

Why were the Prince and Anna specially suited to each other?

" Stories from Everywhere "

Pp. 15-19. Write out the lines beginning, "He had not been there very long . . . croaking of the frogs." Read it through three times and then read it to your teacher. On p. 18 it says, "If it had not been for that little boy, White Hawk might have lost his wife for ever." How did their son help them?

" Stories from Everywhere "

Pp. 21-26. In giving up the bell for the white stick the shepherd boy chose between two things. What were they? Who do you think had the best of the bargain, the little gnome or the shepherd boy?

" Stories from Everywhere "

Pp. 27-31. What is a cormorant? The Chinese train these birds to fish for them. They are about the size of ducks, but how would their beaks differ from those of ducks? Read the story on pp. 27-31. Why wasn't the cormorant sea-sick? Have you ever torn your clothes on a bramble. Tell how it happened.

" Stories from Everywhere "

Pp. 33-38. Why was Gopala afraid as he went through the forest? How did his mother help her little boy? Who was Krishna?

" Stories from Everywhere "

Pp. 39-45. Five people were kind to the talking thrush and

two were unkind. Describe what each of the kind people did for a living. How did the two unkind people earn their money? Do you remember another story in which there is a talking bird?

“ Stories from Everywhere ”

Pp. 47-54. How did the shepherd guess the “poor traveller” was the Shah or King? Copy out the lines in which the shepherd gives his reasons for thinking this. Which proverb on p. 54 do you think is the most clever? Find Persia on p. 15 of your atlas. Name all the countries which touch its borders.

“ Stories from Everywhere ”

Pp. 55-59. Do you know of another story of an ugly monster who turned into a handsome prince when a beautiful maiden fell in love with him? Look at p. 15 of your atlas and name two important countries which lie to the north and north-east of China. They are coloured yellow and brown.

“ Stories from Everywhere ”

Pp. 61-65. “The next day the Tailor found that all his stitches had been unpicked, the house was dirty, and the chimney full of soot.” Explain as fully as you can why this was so.

“ Stories from Everywhere ”

Pp. 67-71. What things taught the man how lonely he was? How did the man know that his wife had gone?

“ Stories from Everywhere ”

Pp. 79-85. Draw the picture on p. 85. Then underneath describe fully what is happening there.

“ Stories from Everywhere ”

Pp. 93-98. Read and then find the description of the way the Leprechaun and Pat rushed to find the crock of gold. Make a list of all the words which show best what a mad rush it was.

“ Stories from Everywhere ”

Pp. 99-104. Then answer question 1 on p. 104. What title would you give the picture on p. 104?

" Stories from Everywhere "

Pp. 113-120. Read. Then look at the picture on p. 120. This was an old-time Russian wedding-party. Who are the two people in the sleigh? Where is Natasha? How can you tell that Russia is a very cold country in the winter?

" Stories from Everywhere "

Pp. 121-127. Why was it so generous of Ianto to say, "Hey, little people, take what you want and welcome, I wish you a good appetite!"? How did the fairies regard his generosity? What caused the luck of the house to go?

" Stories from Everywhere "

Pp. 135-140. This story teaches us "One . . . turn . . . another." Can you fill in the missing words? What good turns did the Prince do? What kind of bride did he seek?

" Stories from Everywhere "

P. 146. Look on p. 12 of your atlas. There is the picture of a cotton flower and seed. On the map of North America the cotton-growing region is marked. Find the other two countries where cotton is grown. Look at the map on pp. 10 and 11. What is the rainfall like in these places. P. 9 will tell you how hot it is when the cotton harvest is gathered.

" Stories from Everywhere "

Pp. 142-151. This legend is remarkable because many thousands of years after this happened the English engineers actually built "a rocky door." Copy the lines on p. 149 beginning "When the time comes . . . land." "The rocky door" is the Aswan dam. Ask your teacher about it. Write this, "The Aswan dam stores up the waters of the Nile to prevent drought in Egypt."

" Stories from Everywhere "

P. 152. Read this and then find p. 7 in your atlas. In the N.E. of Africa you will find the River Nile. It is 3,700 miles long and the second longest river in the world. You see it flows through a desert. Where does it get its water from? The map on p. 11 will tell you.